JOINT CENTER FOR OPERATIONAL ANALYSIS

• QUARTERLY BULLETIN •

Volume VIII, Issue 2 March 2006

JSIC

JOINT SYSTEMS INTEGRATION COMMAND

Report Documentation Page

Form Approved
OMB No. 0704-0188

1. REPORT DATE	2. REPORT TYPE	3. DATES COVERED
MAR 2006	**N/A**	**-**

4. TITLE AND SUBTITLE	5a. CONTRACT NUMBER
Joint Systems Integration Command Joint Center for Operational Analysis Quarterly Bulletin, Volume VIII, Issue 2, March 2006	5b. GRANT NUMBER
	5c. PROGRAM ELEMENT NUMBER
6. AUTHOR(S)	5d. PROJECT NUMBER
	5e. TASK NUMBER
	5f. WORK UNIT NUMBER
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) **USJFCOM JWFC ATTN: Joint Center for Operational Analysis and Lessons Learned (JCOA-LL) 116 Lakeview Pkwy Suffolk, VA 23435-2697**	8. PERFORMING ORGANIZATION REPORT NUMBER
9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES)	10. SPONSOR/MONITOR'S ACRONYM(S)
	11. SPONSOR/MONITOR'S REPORT NUMBER(S)

12. DISTRIBUTION/AVAILABILITY STATEMENT
Approved for public release, distribution unlimited

13. SUPPLEMENTARY NOTES
The original document contains color images.

14. ABSTRACT

15. SUBJECT TERMS

16. SECURITY CLASSIFICATION OF:			17. LIMITATION OF ABSTRACT	18. NUMBER OF PAGES	19a. NAME OF RESPONSIBLE PERSON
a. REPORT	b. ABSTRACT	c. THIS PAGE			
unclassified	**unclassified**	**unclassified**	**UU**	**48**	

Message From the Director

BG Anthony A. Cucolo III, USA
Director, JCOA-LL

Well, it certainly feels good to be back in the Joint Center for Operational Analysis (JCOA) Headquarters again! Between traveling to Iraq, briefing findings from Hurricane Katrina to numerous senior officers, and attendance in the recently completed CAPSTONE course, I look forward to catching up on the details of the numerous initiatives and taskings being worked by the folks here in JCOA. Hurricane Katrina and the other natural disasters in Guatemala and Pakistan, as well as the ongoing War on Terrorism, have kept us pretty well engaged in the collection and analysis efforts. These taskings, coupled with the illness and untimely passing of one of our key members, Major Steve Darulla, US Army, have focused our attention on the things that are really important – our nation, our families, our fellow citizens, and preserving our way of life.

In this issue of the JCOA Bulletin, we are highlighting the Joint Systems Integration Command (JSIC) and their efforts to ensure compatibility and interoperability of systems between the Services. With many new systems being fielded, their work is critical to accomplishing the mission of ensuring the best possible command and control (C2) across the joint Service environment.

Colonel Bryan, JSIC Commander, introduces us to his command and gives us an overview of their mission of supporting the combatant commands (COCOM) through prototype development, testing, and deployment. Col Bryan's introduction is followed by an article written by Ms. Penny Powell, Director Interoperability Demonstrations Directorate, discussing the JSIC concept of operations and the various directorates within JSIC. She also presents information on some of the current systems they have been involved in designing and fielding.

One of those systems is the C2 On-The-Move (C2OTM) that was designed as a prototype using off-the-shelf technology. This initiative is presented in an article by Mr. Dickey Rounsaville, which was field tested with Fifth Corps during a European exercise. CTOTM allows both secure and non-secure communications between commanders and their staff while on the move. Another article, authored by Major James Knapp, USMC, describes an initiative named the Executive Command and Control (EC2) suite–a lightweight, man-portable, and self contained communications package used to provide direct operational support during a contingency or crisis.

Hopefully, these articles and the final JSIC paper, by Mr. Robert Kohout, discussing operational utility assessments, will give you an appreciation for this command and the valuable service they provide to the joint mission.

The final three articles are not related to JSIC but were submitted for publication. The first is from the Institute for Defense Analysis (IDA), written by Mr. Jim Lacey and Major Sharon Tosi Moore, US Army, both JCOA analysts assigned to IDA. This article discusses the lessons learned from Iraq on rebuilding a nation–things done right, things done wrong, and suggestions for the

next time to do it better.

Interagency education at the US Army Command and General Staff College (CGSC) is presented in an article by COL Robert Ulin, USA Ret, and an Assistant Professor of National Security Studies at CGSC. Finally, an article submitted by Lieutenant Colonel Marcus Fielding, an Australian Army exchange officer to CGSC, discusses the US Unified Command Plan and the Unified Combatant Commands that support that command.

ANTHONY A. CUCOLO III
Brigadier General, U.S. Army
Director, Joint Center for Operational Analysis

JCOA UPDATE

Mr.Bruce Beville, GS-15
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Providing improved C2 capabilities…focused on the warfighter

Daniel M. Bryan, Colonel, USAF
Commander
Joint Systems Integration Command

The question *"What will you do **today** to support the joint warfighter?"* echoes within the walls of the Joint Systems Integration Command (JSIC) every day. That is, each individual within JSIC has as their professional passion the goal of providing better command and control (C2) capabilities to the warfighter.

Our challenge is to deftly contribute to this goal on three fronts. The first, interoperability assessments, analyzes the joint interoperability of selected C2 systems, or a mission thread grouping of systems, primarily at the joint task force or combatant command (COCOM) level. These assessments outline what it takes to enable disparate systems to be fully integrated and interoperable in a joint context. The outcome provides practical solutions that can drive program of record software towards increased interoperability. The end result is an improved set of tools in the warfighter tool box.

Prototype development makes up the second front. Here we rapidly build and integrate technology solutions to meet near-term C2 needs not currently available to the warfighter. The end result in this case is delivery, in about a year, of a brand new tool for use by the warfighter.

Our third front, operational utility assessments, brings the warfighter into the mix to balance our technical solutions with a warfighter's operational perspective and focus. This results in "go/no-go" decisions on assessed capabilities, or a way ahead vector to get the capability mission ready.

We squarely target C2 systems integration and interoperability. After all, it's in our name. But we don't do this alone. We offer a unique environment within our state-of-the-art facility that brings people and technology together to solve urgent C2 issues. Our people team up with many others, inside and outside of USJFCOM, providing a powerful engine for change. Our many partnerships with COCOMs, Services, program managers, warfighters, academia, industry, national agencies, and others offer abundant intellectual capital, operational competency, creativity, and agility that allows for rapid delivery of C2 solutions that meet stated warfighter needs.

Together with our partners, we work towards achieving common success that directly benefits the joint warfighter. JSIC is a national asset available for your use. We simply want to help you be successful by providing our warfighters the interoperable C2 capability they deserve today and into the future. I trust the following articles will peak your interest in how JSIC can help you help our warfighters. Today's warfighting environment makes it absolutely essential that we all work together to further our collective C2 capability. JSIC can help. Give us a call.

A Unique Environment to Enhance Joint Command and Control and Solve Interoperability Problems

Penny Powell, *GS-15*
Director, Interoperability Demonstrations
Joint Systems Integration Command

Today's war fighting problems demand rapid, innovative solutions. The Joint Systems Integration Command (JSIC) fills this need. JSIC exists to bring together program managers, technologists, and war fighters to identify and assess promising technology to solve urgent war fighting requirements at the combatant command (COCOM) and joint task force (JTF) commander level. In concert with this mission, a new mission is to conduct interoperability demonstrations of selected systems and programs. The result is objective recommendations for rapid insertion of solutions and interoperability fixes, leading near-term transformation of JTF command and control (C2) capabilities.

Concept of Operations

Key to JSIC's success is the focus on operational problems reported from commanders in the field. Our Program Development Directorate reviews urgent requirements, conducts an analysis of possible solution sets versus capability gap, and then formulates a project for one of three production directorates: Advanced Systems Prototyping (ASP), Interoperability Demonstrations (ID), or Capability Assessments (CA). Each directorate applies operational and technical expertise, and uses state-of-the-art facilities together with defendable and repeatable scientific methodology to integrate solutions, test interoperability, or assess war fighting utility.

The ASP Directorate is responsible for building, testing, and delivering an operational prototype that solves a near-term capability gap identified from several possible sources. ASP uses JSIC organic laboratory resources, equipment, and technical personnel to perform these functions, managing a vendor's efforts as necessary.

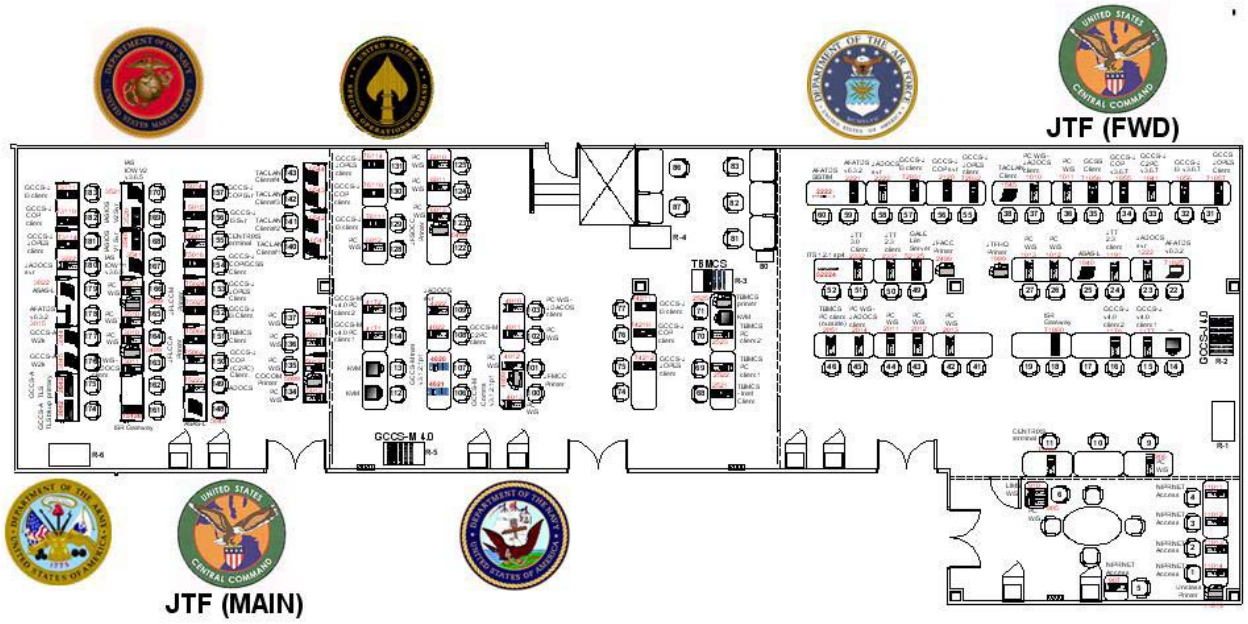
The goal of the ID Directorate is to conduct interoperability assessments, identifying interoperability deficiencies, and enabling subsequent improvements to provide enhanced capabilities for the joint war fighter. Interoperability demonstrations are scoped by using clearly articulated objectives and are guided by COCOM operational needs. These objectives are decomposed to sub-objectives and are linked to the Universal Joint Task List (UJTL) to maintain traceability to operational capability and operationally valid metrics. Five categories of metrics are used in demonstrations: Technical (conformance with applicable standards), Software (usability), Procedural (adequacy of Tactics, Techniques, Procedures, and user aids), System of Systems (ability to exchange all information between all systems necessary to support selected mission threads), and Operational (ability to complete all selected mission threads).

The CA Directorate conducts war fighting utility assessments, consisting of the elements of war fighting usefulness, operational performance, usability, and cost impact. War fighting usefulness is characterized by the completeness, consistency, accuracy, accessibility, adaptability, interaction, and relevance of system functions in support of operational requirements. The operational performance assessment measures the systems capacity for completing war fighting tasks in a timely manner in the JTF environment. The usability analysis examines the adequacy and ease-of-use of the human interface to the capability. The cost impact assessment identifies the hardware, software, and operations and support costs of the solution. The war fighter is actively involved in establishing the relevant measures of effectiveness to determine if the capabilities provide added value.

In addition to the production directorates, JSIC has a superb engineering team of networking and system professionals, who prepare our laboratory for each project and support each project from planning through execution.

The Facility

The JSIC enclave includes ten laboratories in 35,000 square feet of space, plus a special compartmented information facility (SCIF), uniquely constructed for the Department of Defense to support C2. We have more than 128 miles of fiber optic cable and 65 miles of category 5e copper cable supporting hundreds of servers and workstations, coupled with a 110 terabyte (TB) capacity storage area network (SAN) to provide a robust infrastructure backbone. To put that in perspective, all of the printed content of the Library of Congress



represents 20 TB. The Internal Revenue Service's database is 55 TB. JSIC is able to leverage this capacity to store all manner of operating systems, system applications, and data. The power of this capability is that from a central point we can load any workstation with virtually any software package resident on the SAN within minutes. This capability allows one workstation to be loaded with multiple systems during the course of a day.

This capability is particularly useful in the Joint C2 lab, shown in Figure 1. Generally, all interoperability testing occurs in this set of enclaves. Here we examine information exchanges between all of the major command and control systems used in a joint task force, with a goal of finding the interoperability problems. We have full participation of the system program managers and war fighters enabling us to look at both technical and operational issues. Often, the program managers can identify and fix problems on site so we can repeat the assessment to see if in fact the problem was addressed. Our SAN also allows us to record what took place so we can repeat the evaluation for subsequent analysis.

Success Stories

C2 On-the-Move

An example of a prototyping effort is Command and Control On-The-Move (C2OTM). This project was derived from Operation IRAQI FREEDOM (OIF) lessons learned which articulated a need for increased bandwidth and an ability to maintain continuous C2 while the JTF commander maneuvers with his forces. C2OTM employs a classical "bent-pipe" (i.e., no onboard satellite processing) hub-spoke commercial Ku-band satellite architecture. The innovative satellite communication modem used by C2OTM employs code division multiple access techniques. This provides random return channel access and efficient frequency reuse techniques to support a highly, secure Internet protocol based, network architecture fully interoperable with today's systems. The United States Army V Corps will deploy to Iraq with this highly scalable, network-centric, joint war fighter-oriented capability.

Because the C2OTM prototype demonstrated an acceptable level of maturity and performance, JSIC conducted a war fighting utility assessment during URGENT VICTORY/UNIFIED ENDEAVOR 05 mission rehearsal exercise at Grafenwöhr Training Area, Germany, July 2005. For this assessment, the C2OTM system was integrated into a command and control vehicle (C2V) selected by V Corps. The system provided simultaneous connectivity to host applications on the Non-secure Internet Protocol Router Network (NIPRNET), SECRET Internet Protocol Router Network (SIPRNET), and Coalition Network to include the Combined Enterprise Network Regional Information Exchange System. V Corps war fighters provided input to the JSIC data collectors on the system's usefulness, usability, and performance. At the conclusion of the exercise, the V Corps Commander accepted C2OTM as his "go to war" capability. Figure 2 shows C2OTM in V Corps C2V.

Joint Systems Baseline Assessment

An example of an interoperability assessment is our Joint Systems Baseline Assessment (JSBA) effort. The purpose of JSBA was to identify and recommend fixes to OIF targeting and collection management interoperability issues documented in Joint Quarterly Readiness Review 07-3 originating from the U.S. Central Command. Thirty-four targeting and seventeen collection management systems of record operating on both SIPRNET and the Joint Worldwide Intelligence Communications System (JWICS) were examined.

The JSBA integrated test architecture operational views were created using the "conduct targeting" and "conduct intelligence surveillance and reconnaissance (ISR) management" critical information exchange requirements documented in the Joint Command and Control Operational Requirements Document. The integrated test architecture system views were created using point-to-point interface system data exchanges (SDE) captured in C2 system documentation by the system program offices. An SDE is completion of a file transfer from one system to another. An example of an SDE is a national imagery transmission format (NITF) image file transferred via the file transfer protocol from an image product library (IPL) system to an Air Force theater battle management core system (TBMCS). To measure the operational significance of a point-to-point SDE file transfer, each SDE was expanded to a demonstration case (demo case) by adding "expected results," that is, what happens after the file is transferred that makes it useful to the operator at the receiving system. An example of a demo case associated with the above IPL-TBMCS SDE is the ingest of the NITF image by the TBMCS automated image import module, the storing of that image in the TBMCS image transformation services database, and the ability to view the stored image using the TBMCS electronic light table image viewer.

Additionally, JSIC successfully validated geospatial interoperability standards and integration of ISR assets with the Global Command and Control System common operational picture, improving situational awareness. During JSBA, twelve interoperability deficiencies were discovered including overlay display problems and imagery processing problems. The synergy among program management representatives together with the rich test environment enabled many of the problems to be corrected on the spot. Solutions to other deficiencies were incorporated in programmed software releases. Figure 3 shows this collaboration on site in the JSIC C2 lab.

The Future

Projects on the horizon for fiscal year 2006 (FY06) include wireless communications for deployable JTF headquarters (HQ), Joint Geospatial Intelligence Activity (JGA), Joint Battle Management C2 mission thread assessments, and counter-improvised explosive device assessments, to name just a few.

In the future, we plan to improve the throughput of interoperability certification testing. JSIC assets such as its Joint C2 lab and JSIC ID venues are ideally suited for cost-effective joint interoperability test command (JITC) data collection in support of standards compliance, interoperability assessment, or interoperability certification. For example, during the JSBA ID, JITC was able to collect data on the U.S. Marine Corps Intelligence Analysis System Family of Systems (IAS FOS). The use of JSIC funded ID events for JITC testing benefits the program managers, JITC, and most importantly, the war fighter.

JSIC is a national asset. We can help ensure developing systems are interoperable before fielding. Our partnerships with JITC and others help with certification and accreditation needs. Our labs and people are available for your use.

For further information, contact operations@jsic.jfcom.mil, or visit http://www.jfcom.mil/about/com_jsic.htm.

About the author:

Mrs. Penny E. Powell is the USJFCOM, JSIC Director of Interoperability Demonstrations. She began her career as an electronics engineer for the Naval Electronics System Engineering Center in 1984. She was part of the Space and Naval Warfare Systems Command team tasked with transforming a naval systems command lab to the USJFCOM Joint Training Analysis and Simulation Center (JTASC). She continued to support JTASC as the command, control, communications, computers, intelligence, surveillance, and reconnaissance (C4ISR) systems engineer. She assumed her new duties with the USJFCOM Joint Systems Integration Command (formerly the Joint Battle Center) as Chief, Systems and Technology and established the JBC Joint C4ISR Integration Facility, now the C2 LAB. She received a B.S. in Electrical Engineering from Old Dominion University, and has over 20 years of command and control experience.

JOINT COMMAND AND CONTROL ON-THE-MOVE (C2OTM)

Dickey R. Rounsaville, GS-14
Capability Assessment Project Lead
Joint Systems Integration Command

INTRODUCTION

Since the earliest days of battlefield communications, warfighters have sought methods which optimized the delicate balance between information capacity and tactical practicality. Too often a joint task force (JTF) commander has faced a trade-off between capability and mobility while conducting battlefield operations. The highly mobile nature of modern warfare against an asymmetric enemy necessitates that the commander remains connected to the information sources he relies upon to make decisions under all conditions, regardless of platform, environment, or mobility state. By being able to access the information while on the move, the commanders can better position themselves on the battlefield for more effective control of their forces.

Until recently, a broadband, Internet protocol (IP) based architecture to support a military commander while rapidly on the move has not been practical, and trade-offs involving information capacity had to always be weighed against mobility restrictions. Data rates above 9-64 kilobytes per second (Kbps) were difficult, costly, or impossible to achieve for mobile tactical users. At those rates, bandwidth intensive applications such as video teleconferencing (VTC), multi-user secure telephony, and imagery transfers were impractical or even impossible to implement. The end result was a reduction in the commander's situational awareness through an inability to access the same information sources and techniques available at a fixed headquarters (HQ) where bandwidth was not at such a premium. Clearly, the development of new methods was needed.

A highly scalable, network-centric, joint warfighter oriented capability has been developed by the United States Joint Forces Command (USJFCOM), Joint Systems Integration Command (JSIC), in partnership with industry, for use by the United States Army V Corps during deployment in Operation IRAQI FREEDOM (OIF) that addresses this challenge and closes the wide capability gap which has previously existed. This capability will allow the commander broadband, OTM access to a similar level of command and control oriented network services as might be enjoyed at a fixed command post. This novel approach is built upon commercial, Ku-band satellite technology and an IP based network architecture fully interoperable with today's systems.

CURRENT DOD LANDSCAPE

Two of the overarching battlefield lessons learned drawn from OIF was the need for more bandwidth and the need to conduct command and control while truly in motion.[1] The limited availability and reduced bandwidth of traditional beyond line of sight (BLOS) ultrahigh frequency (UHF) tactical satellite (TACSAT) communications networks proved untenable for the conduct of modern warfare, as the demands of modern information systems greatly exceeds the capacities of such networks.[2, 3]

A number of formal requirements exist documenting the need for improved systems [4-7] and various U.S Department of Defense (DOD) programs and experimental initiatives have been established to address solutions. However, most of these efforts have focused on the application of traditional satellite access methods such as time division multiple access (TDMA) and frequency division multiple access (FDMA) to achieve a solution. The C2OTM project demonstrates that a third alternative, code division multiple access (CDMA), exists which has attractive advantages over both these traditional techniques in terms of cost, efficiency, complexity, and scalability.

JSIC, a subordinate command of USJFCOM in Suffolk, VA, is chartered with the rapid prototyping, assessment, and transition of warfighter operational capability, which quickly and substantially fills the existing gap between the warfighter needs of today and DOD Program of Record (POR) solutions of tomorrow. JSIC chose to explore a novel Ku-band (10.95-14.50 gigahertz (GHz)), CDMA, spread spectrum technique to achieve a practical, broadband, IP based, "on-the-move" (OTM) system using small, low cost, low power, very small aperture terminals (VSAT), while maintaining broadband data rates approaching 10 megabytes per second (Mbps).

JSIC C2OTM INITIATIVE

In April 2004, JSIC stood up a C2OTM operational prototyping effort under its Advanced Systems Prototyping (ASP) Directorate with the following objectives:

- Investigate a practical joint C2OTM solution
- Provide significant advantages over existing systems
- Leverage Commercial-off-the-shelf (COTS) technology for rapid prototyping
- Integrate the use of joint warfighter applications
- Operationally assess a prototype with the warfighter
- Transition to a Program of Record for sustainment

The JSIC approach involved a two block prototyping process. Block 0, concluded in November 2004, was a highly successful proof of concept phase designed to demonstrate that there existed practical, commercial technology which could be quickly applied to meet warfighter requirements. Block 1 followed in December 2004, building off of Block 0 lessons, to rapidly develop a deployable prototype which could be operationally used and assessed under realistic conditions by the warfighter.

In January 2005, USJFCOM was approached by U.S. Army V Corps, headquartered in Heidelberg, GE, and asked to develop a capability [8] which could provide broadband, IP based, OTM communications support to two tactical command vehicles deploying into the U.S. Central Command (USCENTCOM) theater as part of their rapidly deployable assault command post (ACP) concept.

As a potential joint task force commander, the V Corps Commander saw the need to improve joint mobile battlefield communications based on previous USCENTCOM lessons learned. However, deployment schedules would not permit them to wait for the arrival of solutions that could potentially emerge from existing Service programs of record, and immediate alternative solutions were sought to bridge the gap between existing capabilities and operational needs.

V Corps specifically sought connectivity for the Corps Commander and his support staff to the Non-secure Internet Protocol Router Network (NIPRNET), SECRET Internet Protocol Router Network (SIPRNET), and Combined Enterprise Regional Information Exchange System (CENTRIXS) resources, whether OTM, at the halt, or dismounted from the vehicle.

C2OTM ARCHITECTURE FOR V CORPS

The V Corps required C2OTM integration into two vehicles. The first, the M4 Command and Control Vehicle (C2V), is a tracked, armored vehicle based on a Multiple Launcher Rocket System (MLRS) chassis and outfitted with an array of tactical communications gear for the JTF commander's use when traversing the battlefield.

The second, a high mobility multipurpose wheeled vehicle (HMMWV) similar to the JSIC test platform shown in Fig. 1, was to support a more rapid deployment of the capability to trouble spots and the quick establishment of a tactical operations center (TOC). It is important to note that the C2OTM capability is platform agnostic, and while the C2V and HMMWV were the two vehicles targeted for integration of this capability in support of V Corps, other platforms could have easily been selected to host the capability.

A classical hub-spoke architecture was developed in support of V Corps requirements using "bent-pipe" (i.e., no onboard satellite processing) commercial Ku-band

Figure 1: C2OTM Vehicle with Dismounted User

satellites to provide complete coverage to any equipped joint unit in its theater of operations. Desired objective data rates were 10 Mbps for a shared forward channel broadcast to all users, and 512 Kbps for individual return channels from each mobile platform. Existing comprehensive Ku-band satellite coverage for most of the world's land masses, littorals, and commonly traveled sea lanes facilitates deployment of this system to almost any likely operating area in the world.

V Corps vehicles would be able to access their backend data services residing in the rear through a satellite hub located either at a tactical location or a Defense Information Systems Agency (DISA) maintained "teleport" site for connection out to the Global Information Grid (GIG).

THE DELIVERY

This summer, JSIC personnel answered V Corps's need by setting up the hub in Germany and installing the suitcase-size mobile terminal equipment in an M4 C2V. Up to six soldiers and workstations could be situated in the rear compartment of the C2V. See Figure 2 below for the vehicle layout as planned for the V Corps delivery.

As part of the delivery, Titan Corporation's 18-inch four-axis open loop tracking parabolic antenna was installed on top of the C2V. An inertial reference unit that receives positional updates from a Defense Advanced Global Positioning System receiver and senses roll, pitch, and yaw motion was used to ensure that the antenna was constantly pointed at the satellite while on the move. Both the forward and return links of the delivered system used a ViaSat proprietary spread-spectrum technique known as code reuse multiple access (CRMA) to allow random access by multiple users, while mitigating adjacent satellite interference due to the very small aperture of the Ku-band antenna used on the mobile terminal.

It is important to note, the spread-spectrum ViaSat modem enabled the C2OTM to operate using a very small antenna that expends less power and is smaller, lighter, and less costly than the antennas other systems require. These are ideal characteristics for communications equipment mounted in the limited space of the vehicle.

Advanced Encryption Standard was used to support an encrypted virtual private network, thus information security is assured. Data originating on the NIPRNET

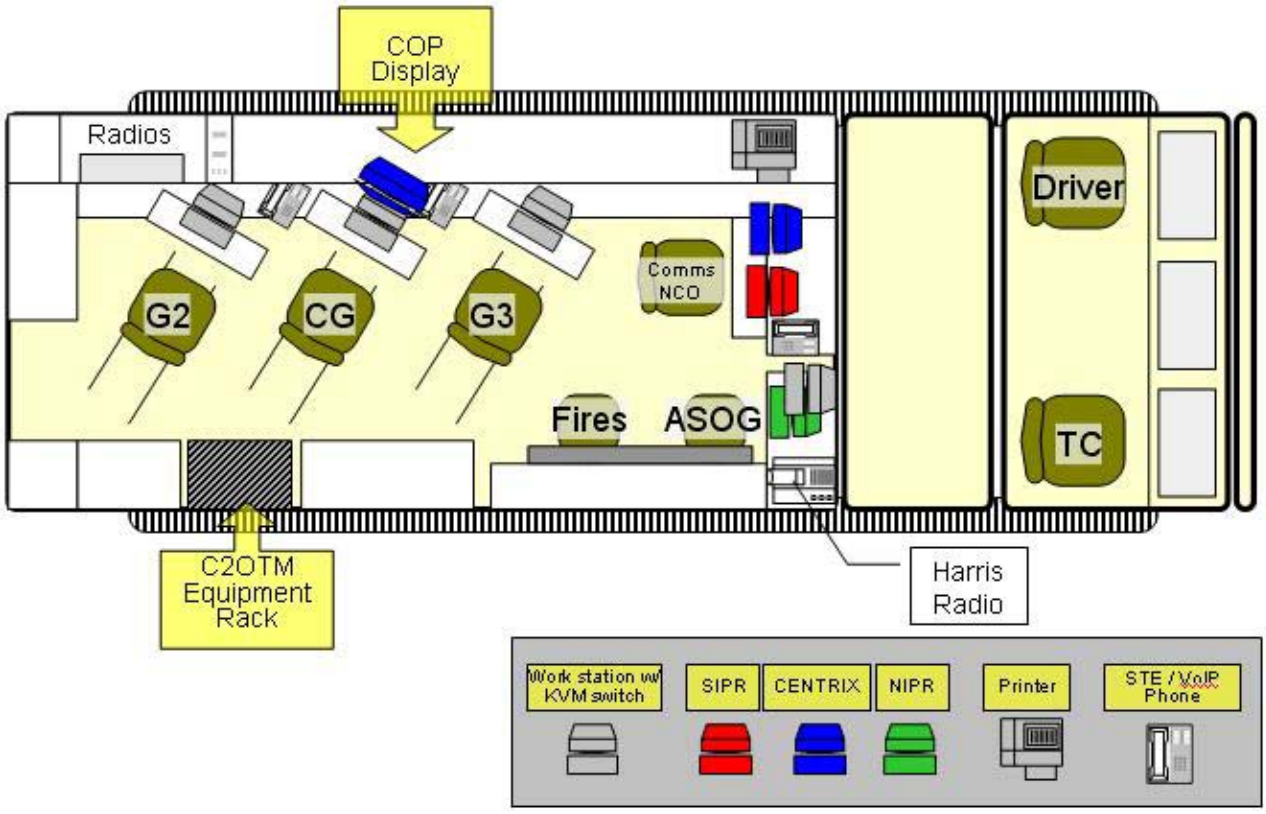


Figure 2: Command and Control Vehicle Configuration

was protected via an Internet protocol security (IPSec) tunnel. All data originating from the SIPRNET and CENTRIXS networks was encrypted using a type one AltaSec KG-250 in line network encryptor.
A voice over Internet protocol (VoIP) gateway and session controller managed up to 25 telephone calls simultaneously. Any foreign exchange subscriber equipment for voice communications, including secure telephone equipment, the secure telephone unit III (STU III), or a plain old telephone system handset could be integrated into this unit to facilitate voice communications.

Users could also communicate securely when away from the vehicle. The C2OTM features a SecNet-11 wireless access point developed by the Harris Corporation that provides an 802.11b-based Type 1 secure wireless link to handheld devices such as a tablet PC.

The number of networks available to users was another distinguishing feature of the delivered system. SIPRNET, NIPRNET, and CENTRIXS were available while traveling at 45 miles per hour with data rates that are similar to those available in a headquarters, office, or home.

Finally, the C2OTM network provided the capability "to reach back" and pull common operational picture (COP) data to support a live COP, to conduct InfoWorkSpace (IWS) collaborative sessions, to make phone calls, and to access the unit's web share point. It is important to note, these critical applications and services were available simultaneously and across the three different networks previously mentioned.

C2OTM ASSESSMENT

As a second component of the delivery, JSIC conducted an operational assessment (OA) to support the V Corps acceptance decision. The primary purpose of the OA was to evaluate the utility of the delivery and the ability of the C2OTM capability to provide the U.S. Army V Corps Commander/Joint Task Force (JTF) Commander the necessary connectivity to support informed decision making while moving throughout the battlefield. Specifically, the system was assessed to meet V Corps requirements for a capability to:

- Have freedom of movement on the battlefield while maintaining situational awareness.
- Have an initial entry capability for the Corps.
- Have continuous situational awareness during dislocation of Corps command posts (CP).

The JSIC process allows for rapid assessment of the warfighting utility required to successfully field a capability. This assessment centered on whether or not the C2OTM system provided utility, or "value-added," to the warfighter. Utility is comprised of the following elements:

- *Usefulness* - the system's capability to enhance the warfighter's operational performance of his mission. Usefulness includes, but is not limited to, information accessibility, accuracy, adaptability, completeness, consistency, and relevancy.
- *Usability* - ability of the software and hardware of the system to provide the warfighter with machine and/or human computer interface that is easy to relate to and understand.
- *Performance* - the capability and capacity of the system to support completion of required tasks in a timely manner.

The assessment was conducted at the Grafenwöhr Training Area (GTA) from 19 July - 2 August 2005 during URGENT VICTORY 05 and UNIFIED ENDEAVOUR 05-31/Mission Rehearsal Exercise by warfighters assigned to the V Corps ACP. This provided a venue for the warfighters and operators to utilize the capability using the network and operational backdrop of the exercise.

Prior to assessment execution, V Corps personnel were provided with informal training on the system components and their operation by the JSIC Delivery and Installation Team members and vendor representatives. On-the-job training by JSIC continued during system configuration.

During the assessment, the warfighters who had received the training operated and maintained the C2OTM capability. Throughout the assessment period, JSIC personnel collected data on the warfighters' evaluation of the system's utility and conducted follow-up interviews to clarify ratings and comments. Analysis of this data determined whether the V Corps requirements were satisfied.

In the course of the OA, the system was operated and demonstrated, either on-the-move or statically, by the assigned C2V crew and ACP personnel to the V Corps Commanding General, Operations Officer (G3), and Communications Officer (G6), senior Service representatives (Colonel, Senior Executive Service (SES), and General Officer), and USJFCOM Senior Mentors. Their statements and the operator/maintainer comments on the system's capability to meet operational requirements were collected during the demonstrations and were the basis for the utility ratings the C2OTM capability received.

The delivered C2OTM met or exceeded warfighter usefulness, usability, and performance requirements. Just prior to and during the assessment, V Corps personnel trained on, operated, maintained, and exercised the system, finding it reliable, intuitive, and that it exceeded warfighter requirements. IWS collaborative tools were exercised along with command and control for the personal computer (C2PC) for COP. Data transfer rates of 2.0 Mbps on the forward channel and 512 Kbps on the return channel were achieved with minimal packet loss (from anything other than direct line of sight (LOS) blockage). As with the CONUS based approach, forward channel data rates approaching 10 Mbps will be possible following a software upgrade and 36 MHz transponder allocation. Although optimized for OTM use, C2OTM provided the network services for a tactical operations center (TOC) while at the halt, establishing connectivity in less than one minute from the vehicle itself. In this capacity, C2OTM provided the external connectivity necessary to support forward command post operations across three networks, to include secure and non-secure voice calls and faxes. Additionally, it dramatically increased options for the commander, resulted in significant manpower and equipment savings, and provided immediate broadband HQ reach-back for TOC personnel.

Based on the demonstrated C2OTM capabilities, the V Corps Commander accepted delivery of the C2OTM system and recognized it as a necessary capability for pending deployments and JTF operations. The C2OTM system's communications path provided continuous connectivity to allow the warfighter to view the COP, collaborate, and communicate with no interruption of services when on the move, at the halt, and during transition.

LESSONS LEARNED

The key findings of JSIC's C2OTM delivery and assessment are that the C2OTM system:

- Provides an interim, near-term, cost effective solution to meet the V Corps Commander's requirements to command and direct operations on the move when displaced from his command post.

- Is applicable to JTF commanders with similar requirements to command and direct operations while on the move.

Based upon these findings, the following recommendations were made:

- USJFCOM support V Corps in gaining approval for deployment in the USCENTCOM area of operations.

- JTF commanders implement the C2OTM capability to satisfy requirements to have simultaneous and continous on the move access to host applications on their network domains.

One last and extremely important point that clearly stands out from the JSIC delivery and assessment effort is that C2OTM addresses many of the challenges troops faced in recent operations, including on the road into Baghdad early in Operation IRAQI FREEDOM. During that conflict, available systems did not provide the capabilities commanders required while in transit, so troops had to stop to set up antennas which took time and increased their vulnerability to countermeasures. C2OTM addresses these problems by providing the JTF commander the capability to have a C2 capability to command and communicate with his forces while on the move with little to no degradation to the capability he has in an established command post. C2OTM also provides the JTF commander with better access to information from the component commanders to improve decision making as he moves about the battlefield. To fully realize the full potential of this capability, leaders must support the doctrinal and materiel changes that will be needed to deploy the C2OTM capability for the benefit of the warfighter.

CONCLUSION

Currently, JSIC continues efforts to have the C2OTM capability integrated and/or adopted into a program of record, as well as to assist with V Corps's implementation of the C2OTM capability in support of their OIF mission. But perhaps the most significant outcome of JSIC's C2OTM delivery and assessment effort is conclusive proof that CDMA, spread spectrum technology has matured to a point where a cost effective, network-centric "on the move" capability is available to the warfighter. The JSIC solution provides a highly scalable architecture with proven performance; it's ready for immediate operational insertion and can be easily leveraged beyond the immediate needs of V Corps. No longer must commanders trade capability for mobility– with C2OTM, they can have both.

ACKNOWLEDGEMENT

Significant portions of the following papers and articles were either included or paraphrased in body of this article:

"Joint Command and Control On the Move (C2OTM)," Milcon 2005 Paper 1798, LCDR Steve Fahey

"Network-Centric Operations Go on the Road," Signal Magazine, October 2005, Mary Lawlor

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Executive Command and Control (EC2) Suite: Prototype Becomes an Operator

Major James Knapp
EC2 Government Project Lead

Within 29 minutes of the Command element of the Standing Joint Forces Headquarters (SJFHQ DAC-PAK) arriving in Pakistan in support of the relief efforts for the recent earthquake tragedy, they had a direct communications link back to their own network in order to exchange status information and updates on both the Non-secure Internet Protocol Router Network (NIPRNET) and SECRET Internet Protocol Router Network (SIPRNET). The ability for these United States military first responders to collect real-time observations and relay that information over data networks to facilitate command and control (C2) of the forces under their authority was made possible with the capabilities of the Executive Command and Control (EC2) Suite provided to the SJFHQ by the Advance Systems Prototyping (ASP) Directorate of Joint Systems Integration Command (JSIC).

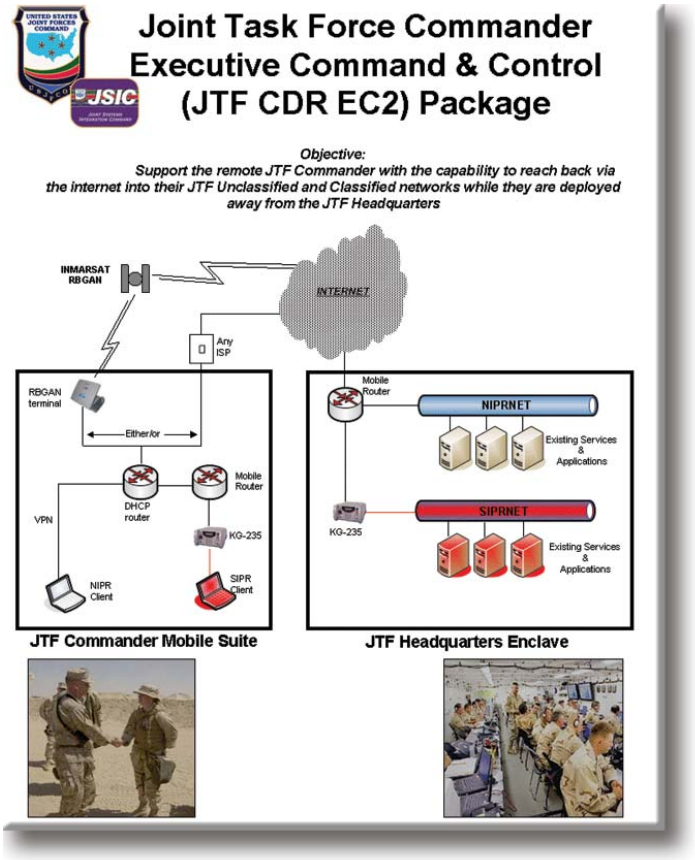
The EC2 Suite provided the "first in comms" capability to the SJFHQ Commander and his immediate staff. Additionally, it served as the only redundancy system to the main tactical communications set, the Joint Mobile Ashore Support Terminal (JMAST). The EC2 operated in the background continuously while the JMAST supported the main communications needs of the SJFHQ, but in the times of JMAST systems failure, the EC2 provided the only reliable path for connectivity to the Internet, NIPRNET, and SIPRNET. The EC2 kits provided a vital, invaluable link for the timely submission of reports and transmission of orders to and from the SJFHQ and supporting forces in the continental United States (CONUS) and elsewhere.

This was the first time the EC2 was used in direct operational support to a contingency or crisis. This lightweight, man portable, self-contained communications suite, developed within the ASP Directorate by direction of the former Joint Forces Command Commander, Admiral Giambastiani, 'cut its teeth' in a rapidly changing operational environment that demanded excellence and reliable performance. The EC2 kit proved to be worth its 'weight in gold' for C2 support according to the members of the SJFHQ who benefited from the kit's capabilities.

Though the initial concept was to provide joint task force (JTF) and Flag level officers and executives the capability of reaching back to their own networks, whether they are 'on the road' in a built up area or 'in the field' in an austere environment, the EC2 has now demonstrated that in the absence of other communications links it is capable of giving the commander a reliable means to maintain situational awareness and continued control of the forces under his command. Undeniably the EC2 is a capability that senior commanders will find indispensable. Essentially extending their home station networks to their deployed locations enables commanders to be present and aware regardless of their physical location or proximity to their forces.

The communications interface to enable this is provided via an InMarSat terminal or by connection to any Internet service provider (ISP) jack in a wall. The current reach-back through the InMarSat terminal is a meager but reliable 64 kilobytes per second (Kbps) speed which is sufficient for access to SIPRNET and NIPRNET email traffic and browsing. Currently available and emerging advances in InMarSat transmission equipment (the Regional Broadband Global Area Network-RBGAN, with a maximum transmission rate of 144Kbps shared among network users; and the Broadband Global Area Network-BGAN, with a maximum transmission rate of 484Kbps) will have a profound impact on the importance an EC2 suite will have to a commander. The broadband connection from an ethernet connection from a built-up facility such as a hotel gives the commander the look and feel of using his normal desktop machines.

Whether the connection is through a 'wire in the sky' via an InMarSat terminal or ethernet connection, the enabler to this 'reach back to the home network' roll away package is the relationship between the home agent and the mobile kit via the CISCO 3251 router. In this point- to-point link, the pathway to the home network is established through the mobile kit's logical connection to the home agent, which is physically located at the home network location. The home agent consists of a publicly addressed CISCO 3251 router (capable of supporting up to 5000 mobile kits) and a KG-235, which



enables the tunneled SIPRNET traffic to be pass to the greater SIPRNET network. The mobile kit, on the backside of the transmission means (InMarSat or ethernet connection) consists of a LYNKSYS DHCP router which accepts the NIPRNET terminal traffic and the encrypted SIPRNET traffic from the privately addressed CISCO 3251 router, with its backside KG-235 and SIPRNET terminal (see diagram).

Though other technologies could have been utilized in the EC2, the reason for choosing the CISCO 3251 was that its versatility better supported the challenges a deployed communications team in support of a JTF commander or Flag executive might face. The KG-235 (In-line Network Encryptor-INE) establishes a point-to-point private connection via the CISCO 3251 tunnel that ensures communications transmission security (TRANSEC) for SIPRNET traffic that travels over the same means as the unclassified traffic.

As more JTF level commanders are exposed to the capabilities of the EC2 suites and the minimal impact of the cost, generally $53,000.00, minus the InMarSat terminal, it is certain that more commands will desire and demand this capability. The previous success of command level support the EC2 has provided to COCOMs and JTF commanders is proven. With EC2 suites currently supporting the USJFCOM Commander, European Command (EUCOM) Commander and Deputy Commander, the Multi-National Forces Iraq (MNF-I), Multi-National Corps Iraq (MNC-I), and Combined Forces Command Afghanistan (CFC-A), there is no doubt that this versatile roll away kit has a desired support capability and responsive record that has kept the commanders situational awareness at its best, regardless of the moves they have needed to make.

This most recent success of support the EC2 kit supplied to the SJFHQ DAC-PAK proves yet again that this kit's ability to extend the commander's home NIPRNET/SIPRNET desktop to austere environments with reliability is a system a commander can count on. Now, 'battle tested' as a go-to system for contingencies and crisis response, the EC2 has shown its mettle as a command and control communications tool.

About the author:

Major Jamie Knapp, USMC, is the Executive Command and Control Government Project Lead in the JSIC Advanced Systems Prototyping Directorate. He has served as a Marine in communications positions from the tactical to operational level of war across the spectrum of the Marine air-ground task force. During his more than 19 years as a Marine he has developed an insight for communications needs and applications through his enlisted years as an operator/maintainer technician and his assignments as a Communications Officer at Battalion, Regiment, and Group Commands. His assignment with the G-6 in support of 2d Force Service Support Group in its role as the lead Service for Joint Task Force-160 (Detainee Operations) during Operation Enduring Freedom, and the Marine Logistics Command during Operations Iraqi Freedom, has provided invaluable insights for the communication needs JTF commanders and executives have to maintain situational awareness to affect their command and control over assigned forces. His education includes a BS in Electronics Management, a MA in Acquisitions and Procurement, and he is a recent graduate of the US Army Command and General Staff College.

An Operational Utility Assessment Environment to Enhance Joint Command and Control

Mr. Robert Kohout
Director of Capability Assessments, JSIC

Supporting the warfighter is the raison d'etre of the Joint Systems Integration Command (JSIC). As technology proliferates, types of conflicts evolve, and adversaries change their tactics, techniques, and procedures (TTP), it creates a demand for our warfighters to have rapid access to efficient and timely capabilities. The Joint Systems Integration Command is continually developing better methods and processes for conducting warfighter utility assessments to provide integrated and interoperable solutions for immediate use by warfighters in the field.

Concept of Operations

The Capabilities Assessment Directorate is responsible for the operational utility assessment of projects. Using a government and contractor base of engineers and operationally grounded personnel, we conduct assessments in three phases. These phases involve technological review, controlled laboratory experiments, and free play joint exercises. Upon conclusion of the three phases, we create formalized recommendations within a "final assessment report,"

The warfighter is the key element in our operational utility assessment and is used as a measure of success. It is not enough to simply evaluate a system against standards, requirements, performance measurements, or physical attributes. We focus on whether or not the warfighter's needs are being met and incorporate their needs as an integral part of our assessment process. Bringing the warfighter into the mix to balance technical solutions with a warfighter's operational perspective and focus, allows "go/no-go" decisions on warfighter assessed capabilities.

We combine warfighters and technologists working side-by-side, to bring real value-added technological solutions to warfighting problems. Allowing warfighters and technologists to work together creates the opportunity to observe and apply joint command and control capabilities prior to their use in combat.

We have evaluated numerous potential systems solutions since our inception. These operational, programmatic, and technical assessments produced findings that led to the rapid fielding of many solutions, as well as revised or enhanced DOD standards and policies. All fielded solutions have brought improved interoperability or capability to the warfighter. In some cases our findings have led to the cessation of redundant or ineffective programs, thereby saving time and money.

Our rigorous and repeatable methodology has been used in numerous assessment events and refined over several years. Our process allows for rapid assessment of the maturity, jointness, and warfighting utility factors required to successfully field warfighter capabilities.

Working with other JSIC directorates and project sponsors, we develop assessment plans which are used to generate data collection plans. Appropriate coordination is done with the project sponsor to obtain warfighter support and identify an assessment venue, as well as for the production of any support plans required by the event to include the production of master scenario events list (MSEL) triggers to stimulate the system being assessed. Rehearsals of the assessment and training for the operators – not only on the system in question, but also on the JSIC Data Collection and Analysis Tool (JDCAT) – are accomplished. Finally, the assessment itself is executed and documented. Feedback into the assessment process by those who execute it also takes place on a continuous basis. This enables a self-improving process that provides state-of-the-art solutions to our joint warfighters.

Recent Assessments

We recently conducted the following assessments:

- Speech-to-Speech technology for use by Multinational Security Transition Command-Iraq (MNSTCI)
- Command and Control On-The-Move (C2OTM) for V Corps use in Iraq
- Black Light (an IBM provided/supported service designed to help analysts discover and systematically exploit open source information from the Internet) in response to a request by Joint Transformation Command – Intelligence (JTC-I) to support Multinational Force – Iraq (MNF-I)

- Secure Configuration Tool Suite (SCTS) for use by tactical units of all Services

- Enterprise Network Management Capability (ENMC) solution supporting United States European Command (USEUCOM) Network Operations and Security Center (NOSC)

Working With You

While each of these capabilities or technologies provided tangible and often transformational value to the warfighter, JSIC assessments do not measure success exclusively in terms of solutions that end up in the warfighter's tool kit. JSIC assessments have safeguarded against the funding or fielding of technologies lacking in maturity, utility, or interoperability. While partnering with industry, academia, and other defense organizations to transform the "art of the possible" into tomorrow's command, control, communications, computers, and intelligence (C4I) needs, JSIC is dedicated to ensuring that our customer, the warfighter, remains the fundamental measure of our success. We welcome the opportunity to work with you and request you contact us if we can assist you.

For Further Information

For further information, contact operations@jsic.jfcom.mil, or visit http://www.jfcom.mil/about/com_jsic.htm.

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Mr. Robert Kohout is the Director of Capability Assessments for the Joint Systems and Integration Command (JSIC), and is charged with providing recommendations concerning new warfighting capabilities by assessing operational prototypes. Mr. Kohout has served with JSIC since March 1997, and has served in many positions within the command. His previous position was to establish and serve as the Director of Advanced Systems Prototyping. His assignments as the AMC Science Adviser to U.S. Southern Command (SOUTHCOM) and the U.S. Army Training and Doctrine Command (TRADOC), Battle Lab Integration, Technology and Concepts Directorate (BLITCD) have provided valuable insights on command and control within joint task forces and combatant commands. Mr. Kohout earned a Batchelor of Science degree in Electrical Engineering from Virginia Polytechnic Institute and State University in 1982. He also holds a Master of Science degree in Systems Management from the University of Southern California.

Rebuilding a Nation: Observations to Turn Things Around or Thoughts for Next Time

Mr. Jim Lacey, IDA Analyst
Major Sharon Tosi Moore

Iraq has proven that repairing an economically fractured nation is an extraordinarily hard task and through our own actions and inactions we have made it even more difficult. It is not too late to fix the problems of rebuilding Iraq but it will take a renewed effort over a number of diverse sectors. This paper provides thoughts and observations that will hopefully spark debate and lead to more thoughtful approaches. Additionally, by taking an uncompromising look at what the United States did wrong in Iraq, we can hope to learn how to do it much better in the event we are in some similar future situation.

Prior to the coalition invasion, Iraq was an economic basket case and not much appears to have changed in the last two years. According to a recent Government Accountability Office (GAO) report, the results of billions of dollars of reconstruction investment are practically unseen. Oil production is still below pre-2003 levels, less clean water is getting to the masses now than prior to the invasion and electricity deliveries are still below what Saddam managed to deliver. Could we have done better? Most definitely!

Operations on this scale call for two things – a man and a plan. We had neither! Volumes have been written - by the mostly misinformed - declaring that the United States Military had no plan for stabilizing Iraq after regime change. That debate will not be rehashed here. What is true, however, is that the United States (US) entered Iraq with no serious plan or program to rebuild its economy or infrastructure – a deficiency yet to be corrected. US agencies have begun over 9,000 projects (many still ongoing) but have never built a single program to oversee or link them together. While thousands of projects are intensively managed, no one has established overall priorities, or is ensuring that completed projects significantly contribute to the economic well-being of Iraq.

The absence of a plan would probably have been noticed and fixed earlier had there been someone in charge. That man (or woman) does not appear to exist. An Army general has the economic portfolio as one of his duties, but he is burdened with political and military responsibilities, and has no control over any of the organizations rebuilding Iraq–such as the Iraqi Reconstruction Management Office (IRMO), or Project Contracting Office (PCO). In fact, the military staff responsible for the Iraqi economy have complained that all they have done for almost two years was try and run down data for briefings; a job made much harder by the US Agency for International Development's (USAID) and the State Department's refusal to share any data. In recent months, this problem has been alleviated somewhat, but only because the State Department economic team rotated home en masse and was not replaced, leaving only two of ten economic slots at the US Embassy filled. The military has detailed two officers to help with their workload – but neither of them has any economics training or previous experience.

The bottom line is that when anyone involved with the rebuilding of Iraq is asked, "Who is the economic czar or who is ultimately in charge and responsible?" no answer is ever forthcoming.

According to USAID documents, USAID awarded BearingPoint, Inc., over $200 million to create a structure of economic governance for Iraq. BearingPoint has built its own compound within the "Green Zone," but has had no observable interaction with the military economics planners. The author asked a number of people at the US Embassy, involved in rebuilding Iraq, what BearingPoint was doing for them. The most common answer was either, "I did not know they were doing that," or "Who are they?" A couple of individuals knew BearingPoint had prepared some documents for the International Monetary Fund (IMF) to show that Iraq had a program in place to restructure its economy, but most considered these documents to be mere window dressing with little hope of implementation. That did not stop the IMF from citing them as proof that Iraq had a sustainable plan for the future and was worthy of receiving IMF credits.

In sum, there is no overall plan to revitalize the Iraqi economy. There are just a lot of projects and initiatives with no connective tissue. Creating such a plan was of so little importance to strategic planners that the Economic Annex of the Iraqi Campaign Plan is only now being written. However, even if a plan had existed there was no one in-charge to enact it. What is needed is a person who can knock heads and make all of the disparate groups work together, or at least speak with

one another; someone who can make sure that each project fits into a well conceived whole.

In the end… no man, and no plan, equals no success.

Observations – Big Picture/Strategic

The international institutions tasked with economic rebuilding activities are the World Bank, the IMF, and the United Nations (UN). It is almost beyond belief that their economic teams are rarely on the ground in Iraq. For safety reasons, they have headquartered themselves in Jordan, and expect Iraq's economic ministers to come to Jordan in order to do the proper kowtowing. These organizations work in a number of unsavory and dangerous places – one has to wonder what makes Iraq different?

A number of those working on Iraq's economic problems look to these organizations for guidance on the way forward. They would be wise to remember that no country in recent memory that has accepted the IMF/ World Bank dole has ever escaped from their clutches, nor has any United Nations program succeeded in lifting a country out of poverty. Those involved in nation building have to stop looking at these organizations as the font of all economic wisdom and consider that IMF-imposed programs have often led to social and political turmoil in countries subjected to them. This is a particularly likely happenstance in Iraq since everything the IMF knows about the country seems to come from BearingPoint rather than their own "on-the-ground" knowledge. Still, this lack of first hand knowledge has not stopped these organizations from expounding their ideas on how to fix Iraq, even when these ideas sometimes contradict each other and conventional wisdom.

This is not a new problem. At the end of World War II, Germany was also infested with a plague of informed expert opinions which got in the way of practical decisions. Fortunately the German Economic Chief, Ludwig Erhardt, decided to ignore those experts, even when he met with a storm of disapproval. For example, in the immediate post-war years even the most incremental price changes on any product required the approval of US authorities. However, there was nothing in the American regulations about scrapping the entire price control regime, which is exactly what Erhardt did. The commander of the occupation forces, General Lucius Clay, called him in and told him that all of his economic advisors said freeing prices was lunacy. Erhardt replied, "General my advisors say the same thing. We must ignore them." General Clay did ignore them and the German economic miracle began at that moment, thanks to the foresight of one man.

It is unfortunate that we have not found an Iraqi Erhardt or a US official with the wisdom to know when to ignore the experts or the confidence to challenge them with the basic dogma of, "First do no harm." It is a maxim Mr. Paul Bremer and his staff should have taken to heart prior to making the almost comically suicidal decision to demobilize the Iraqi Army and set an inflexible de-Ba'athification policy. What good did the Coalition Provisional Army (CPA) possibly envision as an outcome of sending the Army home and thereby throwing a full seven percent of the labor force out of work? What possible benefit was there to firing the Iraqi Civil Service and thereby, in a single stroke, wrecking what little governance institutions still existed?

For the future, it should be recognized that every authority who has studied how to build a national economy agrees that the most important ingredient is the creation or sustainment of durable and effective institutions (e.g., courts, civil service). Accepting that Iraq's Saddam era institutions had a lot of problems still does not justify their wholesale destruction, particularly when the people who were fired were in all probability the only ones who knew how to make the country work. Next time, policymakers might consider the decapitation of the "most guilty" and letting the worker-bees survive. Also, common sense may in the future dictate that, when you have an economy on the ropes, it is rarely a good idea to put a half million of the more youthful workers out of a job in an instant, especially when they have military training, a grudge, and weapons.

Having done everything possible to stamp out any chance of immediate economic recovery the CPA then turned its hand to fixing things. The macro problems are easy to spot:

- Crippling Debt
- Destroyed Infrastructure
- Currency Instability – Inflation
- Oil
- Agriculture

- Restarting Industry – State Owned Enterprises
- Unemployment

Let's consider each of these problems in turn, reviewing what has been done and what can be done to undo the damage.

Crippling Debt

Estimates of the size of Iraq's debt range as high as $300 billion. Whatever the true number, the debt is astronomical and Iraq will never be able to repay it without incapacitating itself for decades to come. The CPA came up with a number of plans to reduce or pay off the debt. For instance, it implemented a program to reserve five percent of oil revenues to make reparations payments. Never mind that Milton Keynes in 1919 wrote a short book (*The Economic Consequences of the Peace*) that showed punitive reparations were one sure way to keep old antagonisms alive and provide fuel for future conflicts. The accuracy of this opinion was borne out two decades later when German panzers rolled over France. A second CPA scheme was to go to the Paris Club (rich nations that have lent billions in mostly unrecoverable loans to developing nations) and ask them to reduce the amount owed them. After some haggling, creditor nations agreed to cut the Iraqi obligation by 80 percent over three years as certain conditions were met (even with an 80 percent discount, the new amount owed is still three times Iraq's Gross Domestic Product). There is considerable discussion in Iraq about a number of Paris Club members salivating at the prospect Iraq will not meet the imposed conditions and they will be able to demand payment in full on all debts. Apparently Iraq's oil revenues are just too tempting to let slip away. The IMF and World Bank, both strong proponents of the idea of cutting Iraq's debts, did not shy away from insisting that all arrears due them be made good as a condition of future structural assistance.

The fact is that Iraq cannot pay its debts and should immediately clear the decks by defaulting on all of it, except for the approximately $2 billion owed to commercial banks (which tend to have long memories). The advice Jeffrey Sachs, a Harvard economist, gave to Poland should be recycled for Iraq. He told Polish officials to release the following note to all creditors, "Thank you very much, but we're now in an age of freedom and democracy and can't pay our Soviet-era debts." Replace the word "Soviet" with "Saddam" and presto, it is done.

When this was suggested to Iraqi economic advisors they objected on two major grounds. First, that Iraq would be barred from reentering the global credit markets in the future. This is disingenuous: with billions of oil revenues and the strong support of the United States and other nations, they will not be barred from anything for long. In fact, by repaying the small amount owed to private creditors, and with remaining debt washed away, creditors will find Iraq a great place to do business (assuming future sound economic policies) and the scent of new profits will quickly erase the stench of default. It is in fact the debt overhang that currently keeps creditors away. No rational creditor will lend more money to a country that is sinking under its current debt load.

Secondly, some argue that the doctrine of "odious debt," which allows a country to renege on its debts if the creditors knew they were loaning money to a tyrannical dictator, had never been proven or upheld in international courts. The answer to that is – so what! Call the debts odious and then default (after all what creditor can claim not to have known Saddam was not a good man). Lawyers will no doubt argue for a decade or so, but if the decision eventually goes against Iraq they should still refuse to pay – nation states can do such things. This would have the further salutary effect of making creditors think twice before loaning funds to "prop up" other dictators – Robert Mugabe take notice!

If some payment is required for political reasons, then Iraq should try some scheme that would allow them to stay above the fray. For example, Iraq can establish a fund, say $25 billion, at a money center bank, to divide among all creditors. Then Iraq could sit back and watch creditors all slug it out for their share. Every moment they spend squabbling among themselves is another moment they will not be troubling Iraq as its economy grows.

Destroyed Infrastructure

Iraq's infrastructure was, and remains, a mess both from underinvestment in the Saddam era and from the effects of Iraq's multiple wars. The CPA made massive efforts to rapidly improve Iraq's infrastructure, bringing together in Madrid a conference of international donors, who promised billions to help pay for reconstruction. Unfortunately, according to the GAO, except for American money only a tiny fraction of the promised funds have made their way to Iraq.

As previously stated, the biggest mistake made in Iraq was to start fixing infrastructure without a program to manage the overall effort. While thousands of projects have been started and many completed, there has been no grand scheme for what made sense where and when. For instance, we built 21st century power stations, which the Iraqis are not able to operate and maintain, while hundreds of older generators were available in the global secondary market. Purchasing these older generators would have increased electrical output in a remarkably short period, provided equipment the Iraqis have the expertise to deal with, and because of their lower individual output would have been unlikely to overload the grid at any single point.

Instead, U.S. contractors purchased gas powered turbines for installation in existing power stations, replacing steam engines that ran on crude oil. At the time, the contractors claimed gas turbines were readily available and easy to install relative to alternatives. Both claims are debatable. But no matter how much sense they might have made, the benefits pale in comparison to the problems. No one seems to have noticed that Iraq does not have the refinery capacity to produce the required fuel to run the generators. To keep the turbines operating the Iraqis have resorted to using low grade, oil-based fuel, which reduces the turbines' power output by more then 50 percent, requires three times as much maintenance, and significantly reduces the life of the equipment.

Furthermore, the Iraqis never received the training required to operate this new equipment once it was transferred to their control, nor did anyone factor maintenance costs into the budget. USAID stated that such training was never a priority for them and the issue was not addressed until March 2005. By then many of the generators the CPA had installed were offline for maintenance, and some major power plants were shut down entirely. As late as June 2005, the USAID Inspector General stated that until significant improvements were made in the operations, management, and maintenance of the power infrastructure, the risk of significant damage to U.S. supplied equipment is likely. Is it any wonder that in May 2005 Iraqis were still receiving less power than in 2003, despite claims that 1900 megawatts of generating capacity have been added.1

Had someone been in charge of an overarching program, they would have made sure that completed generators were actually connected to the transmission grid. They might also have examined the grid's capacity to handle the new load. They might even have ensured water treatment plants were connected to the sewer plants. And quite possibly they would have put funds into an operations and maintenance budget so that the Iraqis could actually run and fix all of the shiny new stuff the United States built for them.

One further comment needs to be made about the repair of infrastructure as it deals with expectations. A number of those responsible for monitoring economic developments in Iraq wonder why there has not been a surge of economic growth in areas where there has been significant progress on reconstruction. After all, since we have given them all the ingredients for success, why is it not happening? This problem is much akin to the questions that economists asked about computers in the American economy in the 1980's. Each year companies spent billions on IT, but economists could find none of the expected productivity improvements. Then, in the early 1990's productivity exploded. Adding computers was not enough; they had to be networked together and business practices had to be laboriously redesigned to take advantage of the new technology. The same is true for Iraq. The U.S. focus should be on supplying the basic building blocks of economic growth and then have patience. It will take time for it all to gel and for Iraqis to build the businesses to take advantage of new infrastructure. The effect of our actions may not be immediate, but if the new Iraqi government adopts pro-growth economic policies, it is just a matter of time before infrastructure investment leads to rapid economic expansion. In the meantime, U.S. spokespersons must begin to lower immediate expectations. Too many people are expecting instantaneous miracles, which are unlikely to happen.

Currency Stability – Inflation

When Saddam's regime fell the dinar was practically worthless. In actuality there were two currencies in the country – a strong "Swiss dinar" in the Kurdish regions and a collapsing "Saddam dinar" for the rest of Iraq. We will not examine the technical details of switching to one new national currency, but will examine the macro-decisions regarding what currency to use and how to stabilize its value.

Basically the CPA was forced to make a choice between dollarizing the economy and creating a new Iraqi national

currency. They chose the latter for the following reasons:

- Dollarizing would have forced Iraq (an oil exporter) to share the monetary policy of the United States (an oil importer). The easy reply to this is – so what? Oil is almost universally priced in dollars so arguing that Iraq is an exporter and the US is an importer is pretty facetious. It is made all the more ridiculous by the insistence that the new dinar be pegged directly to the dollar ("peg"), which means that the exchange rate is locked, thereby shackling Iraq to our monetary policy anyway.

- Dollarzing would have required a massive and expensive airlift of coins into the country. This appears to be really stretching for reasons not to do something. There were many ways to avoid the need to ship coins, but in any event, considering how much we are spending daily, a few planeloads of coins would not have made a substantial impact on the budget.

- The political symbolism of dollarization would have been disastrous. This is an assumption and not a fact. Many Iraqis carry around quite a number of U.S. dollars on a regular basis. Still, sometimes what makes the most sense economically has to give way to politics.

Having decided to create a new currency, the CPA had to devise a method of controlling its value. To accomplish this, it recreated an Iraqi Central Bank but without giving it any of the modern tools that central banks in developed nations have at their disposal, such as the use of "open market operations." Essentially the only tool the Iraqi Central Bank possesses to fight inflation is a daily auction of dollars, which is woefully inadequate.2 An alternative to a central bank that does not even seem to have been debated is the creation of a currency board. Such a board would have limited the amount of dinars in circulation in direct ratio to the amount of dollars (or some basket of currencies) that Iraq had in its reserves. At Iraq's level of economic development this would have been a much simpler mechanism to ensure currency stability.

In any case, it is now becoming clear that the Iraqi Central Bank is failing in its task. The peg to the dollar has roughly held steady at 1,400 to 1 since January 2004, although inflation in Iraq is generally accepted to be over 30 percent per year, while the U.S rate is well below 5 percent. Despite a doubling of interest rates by the Central Bank, and rationing of dollars at its daily auctions (a drastic step, which can seriously damage business confidence), Iraq will find it impossible to hold a steady peg with its inflation rate running at ten times America's. If it continues this way – and all signs indicate it will – then Iraq will dollarize and/or the peg will be revalued drastically, and possibly disastrously. An IMF analysis issued in August 2005 already finds the rate of dollarization to be alarmingly high.3 Since economic reforms will never gain traction without a stable currency, this matter requires urgent attention.

Oil

Despite being the focus of reconstruction activities, two years after Operation IRAQI FREEDOM (OIF) oil production is still below the levels of 2003. Much of this lack of achievement is due to the security situation, but a large amount of blame must be laid at the door of poor planning and reconstruction program management. Rather then flog the infrastructure horse further, it will probably be more helpful to think about a few big principles.

First, why did the CPA and other organizations get involved in reconstructing oil infrastructure? Understanding that no Iraqi government will ever privatize the oil industry does not mean that private industry could not have been brought in to do most of the hard work. Rather than doing laborious assessments and then contracting out specific projects, it might have been better to develop schemes that would have brought in the major oil companies to take over already operating fields. It should have been a simple matter to establish project finance arrangements that would have guaranteed the oil companies a certain level of profits (matching their internal investment hurdle rates) while allowing the Iraqis to keep the remainder.

Such projects would have kept oil reserves under Iraqi ownership. Even more importantly, the major oil companies would have brought in all their expertise, access to funding, and technology to get Iraq's oil industry up and running at full capacity in the shortest possible time. To say that the security situation was forbidding misses the fact that these companies have been dealing in the most inhospitable regions of the world for generations and are better positioned then any USAID personnel to know what the risk

management requirements are. It is hard to escape the impression that all the CPA and the Iraqi Oil Ministry really accomplished was to get in the way of private sector development, which could have greatly increased oil production if left relatively unfettered.

The second pressing question regarding oil concerns the best use of the revenues accruing to the Iraqi government. There has been considerable discussion on how to distribute oil revenues among average Iraqi citizens. In a paper written by four economists who advised the CPA, distribution of oil revenues was considered the central economic problem facing Iraq.4 Their advice was that, considering the cost of Iraqi reconstruction, all oil revenues must go to running the government or rebuilding the country, and that none of the oil revenues should be redistributed to the people from an oil trust fund. This is economic lunacy.

No one seems to have done an analysis to see what Iraq's monetary absorption rate is. It is now apparent that this absorption rate is far below the amount of money currently available for reconstruction activities. Any funds spent over an economy's ability to absorb efficiently are almost always wasted. Iraq may have had $50 to $100 billion of infrastructure investment requirements; however, this does not mean it had the resources available to do all of this work for many years to come. After budgeting for government operations, infrastructure projects, and creating a financial reserve (possibly also an oil stabilization fund to smooth out the flow of often volatile oil revenues) there is no reason a certain amount of excess oil revenue could not be distributed to the population.

Such a plan would immediately give every Iraqi a stake in the future of the country and the economy. It would also be a superb way to wean Iraqis from economy distorting subsidies. By gradually reducing subsidies on food and oil, while simultaneously transferring the subsidy funds directly to the population, the negative political effects of cutting subsidies are muted while market mechanisms bring rationality to the price system. Finally, the regular distribution of oil revenues will go a long way towards helping Iraq avoid the "oil curse" where every country (except Norway) has seen its political system corrupted by oil profits.

The easiest way to distribute excess oil revenues will probably be to use the procedures established by the oil-for-food program, which covers an estimated 96 percent of all households. However, with a bit more work, a well conceived oil revenue redistribution system, processed through the Iraqi banking system, could kill a lot more birds with one stone. To make it work, the two state banks and over a dozen private banks in Iraq will have to modernize their systems to make electronic payments possible on a wide scale. Right now, these banks suffer from low administrative capacity, poor technology, lack of proper capitalization, and too few branches– hard, but resolvable, problems.

Each Iraqi deemed eligible for a payment (probably all citizens over a certain age) would receive an annual payment based on the amount of excess revenues projected for that year. One third of that amount would be available in segments over the course of the year, while another third could not be withdrawn for a year. The final third would be deposited into a long-term account that would be available in old age as social security.

In a stroke, the average Iraqi would have money available for consumption, which would provide a spark to the economy while delivering it in segments, would help dampen inflationary effects. Making a large portion of the deposits untouchable for at least a year would automatically capitalize the banking system, while increasing the savings of the average Iraqi. Finally, holding a third of the distributions in long term accounts would give every Iraq a social safety net for their future. Everyone with such an account would have a strong vested interest in maintaining a single, viable, and stable Iraqi state. Making sure that women receive payments equal to men would go a long way toward creating political and social equality between the sexes.

Whether it is too late in the process to enact such a scheme remains to be seen. If the time for action has already passed, then at least the US will have this as something to consider if it is ever faced with rebuilding another resource rich nation.

Agriculture

One question that has been coming up in recent discussions is how to revitalize the Iraqi agricultural industry. A lot of ideas are being batted around – some which strain credulity. Examples include:

– Building a berry industry to create an export agribusiness. Never mind that:

- Berries hate saline soil, and the salinity of Iraqi soil was first mentioned as problem in Iraq 3,800 years ago.

- Iraqi farmers have no experience growing berries.

- An infrastructure consisting of refrigerated trucks, refrigerated warehouses, and refrigerated ships would have to be built from scratch. One might also consider how refrigeration would be maintained with only sporadic power.

- Iraqi berry growers would have to compete against established and hyper-productive American and European Union farmers for a total export market equal to about fours days of Iraq's oil export.

– Restarting a government agricultural research center outside of Baghdad so they could develop cutting edge techniques to expand agriculture. Never mind that:

- A simple Internet search would have revealed that the 50-plus scientists at the center were ranked as the worst of Iraq's 500-plus agriculture PhDs.

- Most of the top agricultural researchers in Iraq were located in agricultural centers in various universities, which do deserve some increased funding.

- Because of Saddam's restrictions, the effects of sanctions, and other impediments even the best of these scientists are almost a generation behind the rest of the world knowledge levels.

- Refusing to provide access to modern technology on the theory that if agriculture remains labor intensive, more Iraqis will be employed and unavailable for insurgent activities. Proponents of this theory seem oblivious to the benefits increased productivity brings to an economy, and unaware that an efficient agricultural sector would create far more jobs in the long run then one forced to rely on medieval planting and harvesting techniques. In fact, this same argument of favoring employment over productivity in the farming sector was offered by the Emperor Vespasian and succeeding Roman emperors. It is often cited as the key reason for the stagnation of the Roman economy and eventual collapse of the Roman Empire. It appears that some economic fallacies can persist for over 2,000 years.

One idea proffered at the US Embassy is worthy of strong future consideration: working to revitalize the wheat sector by rebuilding the canal and irrigation infrastructure. Given that Iraq went from agricultural self-sufficiency to having to import two-thirds of its needs in a generation, this is probably the direction that will have the biggest payoff for Iraq. While the author makes no claims to agricultural expertise, he has noted that Egyptian farmers have many of the same growing conditions and challenges found throughout Iraq. Since Egyptian farmers average over seven metric tons of wheat per hectare, compared to less then two for the average Iraqi farmer, it may make sense to import some of their expertise.

Finally, it should be noted that success in agriculture is not simply a matter of planting the right seeds and employing the most advanced farming techniques. It also requires that farmers have access to credit/capital, a market system that allows them a fair price for their produce, and a level playing field against competition. However, the most important item for success is private ownership of the land. Farmers who have clear title to their property are universally more productive and successful then those who do not farm their own land.

Restarting Industry

Iraqi industry is almost entirely state-owned and when subjected to global competition, there is probably not a single enterprise that is economically viable. This leaves a hard choice between continuing to subsidize various industries (or at least pay salaries for an extended period) or allowing them to fold, which would greatly exacerbate the unemployment problem. There is no simple political solution to this dilemma, but the economic answer is simple – let them close. However, this is an area where politics will almost always trump economics.

The only solution that is politically feasible is to continue to subsidize industry, while paying the money it will take to modernize processes and retrain management and workers. Very gradually, state-owned enterprises can be moved towards privatization or eventually closed. However, the latter will require a strong economy that can absorb the released workers and a social safety net that can support the newly unemployed during the transition.

In the meantime, restarting industry is a matter of setting the proper economic conditions. With improved infrastructure, progress on security, access to credit, and laws that make Iraq attractive to foreign direct investment, private investors will spot opportunities for industry and move decisively to exploit them. Trying to restart industry by fiat (creating a command directed

economy) is a recipe for failure. The best hope may be to assist in the start-up and growth of some industries, such as oil and petrochemicals, where Iraq is almost certainly going to have an ongoing competitive advantage.

Unemployment

Get the macro issues right and this problem will eventually solve itself; get them wrong and all the make-work schemes in the world are doomed to failure. Right now a lot of money is being thrown away on unproductive projects designed to take Iraqis off the streets. Ditches are being dug with shovels that could be dug in a fraction of the time with a backhoe, on the theory that giving Iraqis jobs will both keep them from becoming insurgents and build up their self-esteem. However, there is no study or any evidence that increased employment has any effect on insurgent activity. Further, in the long term it would be much better to focus on creating the conditions that will create real businesses and build real skills. This will eventually create much greater employment then brigades of shovel-equipped diggers or street sweepers.

Some Thoughts for the Next Time – Military

1. As a general rule, the military does not do long term economics very well. In the future, the economic side of rebuilding a nation should be left entirely in the hands of organizations designed and staffed for those activities. These organizations should be expressly directed to maintain strong liaison teams at the senior military headquarters and keep the military staff informed on developments, particularly as they affect security concerns.

2. Some analysis is required to determine the best way to transition a province or region from primarily military activities to stability/rebuilding measures. It probably makes sense that all economic spending in the first 60 days after sustained military operations should be directed by the senior commander for use in that area. The primary purpose of spending at this point would be on projects that lead to immediate threat mitigation. The next 60 days should be a transition period, during which outside experts and agencies come into the region to complete economic assessments and create a plan for rebuilding the economy, which should fit within an overall national plan. Once the plan is approved, the military would divorce itself of most economic projects and hand over responsibility to another designated organization.

3. There is no reason commanders should have to guess at what to do with funds available to them for economic and stability operations. For instance, if later this year a division commander has to conduct sustained operations in a major Iraqi city, he should have analyses available from places like Mosul, Najaf, and Fallujah that outline the best practices in a post-combat situation. Taking the guesswork out of reconstruction would show greater results with less wasted money.

4. If the military is to stay involved with the economics of stability operations, then it needs to create a cadre of officers with some grounding in developmental economics and who are comfortable working with the IMF, World Bank, and USAID. On the tactical side, civil affairs economics teams do not have the expertise required for the massive jobs that confront them. If this expertise cannot be created within the military, then we must establish some method of integrating civilian expertise into division and corps headquarters. Perhaps it is time to reconsider the practice of bringing civilians into the military for limited periods at advanced rank. In WWII the United States did not shy away from making civilians with specialized expertise colonels and generals. Rather then staff the economics section with engineers working for an armor officer, it would be better to get some real experts and make them officers for a three year period… many would jump at the chance.

5. Absent the creation of (or the hiring of) real economic experts, the military should create an institutionalized process for reach-back. Absurd programs can be quickly killed if experts are on-call to pass judgment on new ideas, and if the experts are forced to be part of the solution rather then merely vocal critics. A strong reach-back capability will also provide much needed help in data analysis.

Big Things the U.S. Got Wrong – Covered Inadequately Above

1. There was never any real focus on institution (capacity) building. Only in the past few months has serious attention and funding been given to the creation of durable institutions that can see reform through to the end and guarantee that Iraq is a society governed by the rule of law.

2. Strategic Communications have been a complete failure. As far as the average Iraqi is concerned, America has done nothing for them. A recent poll quoted at the US Embassy in Baghdad states that only 27 percent of Iraqis are aware that the United States has done anything to rebuild their infrastructure or help them economically. However, of those, 90 percent approve of what we are doing. Right now in Najaf, Sadr's Army has erected billboards and printed bumper stickers claiming credit for US projects for themselves and Iran. The good news is that we can expect to see huge gains in support in return for little effort, when coupled with the right communications plan.

3. We did a terrible job working with the UN, IMF, and the World Bank. In short, the UN should have been cajoled to do a lot more then it did, and the IMF and the World Bank should have been forced to support our reconstruction efforts. For all practical purposes the IMF and World Bank are pawns of the US, which can use its voting clout to push both organizations in any direction desired when there is the political will to do so. It is almost beyond belief to read in one IMF report stating that, Iraq is currently in negotiations for the "possibility" of a loan facility from the World Bank that will provide credit to small and medium-sized businesses. These organizations should have been pushed and, if necessary, forced to put their prestige and funding behind Iraqi reconstruction.

Conclusion

Time to show serious progress in Iraq has almost run out. For what time remains, the Coalition needs to focus its attention on the following economic priorities:

- Build lasting institutions with a permanent civil service and a judicial system that enforces contracts and the rule of law.
- Enhance the training of operators and maintenance personnel working on already completed projects.
- Complete the last five percent of nearly finished projects – hooking generators to the transmission grid and water treatment plants to the sewer systems.
- Stabilize the currency (defeat inflation).
- Establish a process for distributing oil revenues to the population.
- Recapitalize the banking system and modernize its technology.

Endnotes:

[1] This paper will not belabor the status of infrastructure projects any further. For those interested in a good general study of the topic they may want to take a look at the July GAO Report on the matter, "Rebuilding Iraq: Status of Funding and Reconstruction Efforts". http://www.democrats.reform.house.gov/Documents/20050728161324-21084.pdf

[2] For a detailed account of the creation and inadequacies of the Iraqi Central Bank and monetary policies, the reader is encouraged to review Dr. Robert Looney's article on the topic, "Postwar Iraq's Financial System: Building from Scratch," in Middle East Policy Magazine, Spring, 2005.

[3] Iraq: 2005 Article IV Consultation. http://www.imf.org/external/pubs/ft/scr/2005/cr05294.pdf

[4] Economic Policy and Prospects in Iraq. http://www.bos.frb.org/economic/ppdp/2004/ppdp0401.pdf

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Interagency Education at the US Army Command and General Staff College

Robert R. Ulin
Colonel, USA (Ret)

"The military Services are but a part of the national machinery of peace or war. An effective national security policy calls for active, intimate, and continuous relationships not alone between the military Services themselves but also between the military Services and many other departments and agencies of Government."

Ferdinand Eberstadt to James Forrestal, 1947[1]

"…long-term success (in the war on terrorism) demands the use of all element of national power: diplomacy, intelligence, covert action, law enforcement, economic policy, foreign aid, public diplomacy, and homeland defense. If we favor one tool while neglecting others, we leave ourselves vulnerable and weaken our national effort."

The 9/11 Commission Report, 2004[2]

Introduction

The United States Army Command and General Staff College has embarked upon a program to institutionalize instruction on the importance of interagency coordination, cooperation, and planning.

Background

There is a debate within the United States Government (USG) about how to affect interagency coordination, cooperation, planning, and operations. While some departments are actively seeking solutions, other departments wish to be left to their own devices and see no need for such things. However, the National Strategy for Combating Terrorism (February 03), a separate but complementary component of the National Security Strategy with its emphasis on the global war on terrorism (GWOT), has created the need for the interagency (IA) community to step up to the plate.[3] The Department of Defense (DOD) with its large manpower, plentiful resources, and planning culture was the first to react. Joint interagency coordinating groups for counterterrorism (JIACG-CT) were established within selected combatant commands (COCOM) shortly after 11 September 2001 (9/11).[4] These interagency bodies are serving a useful but specific purpose. Joint Forces Command (JFCOM) hosted exercises for the COCOMs to validate the JIACG concept and has begun to codify the concept in doctrine. The National Defense University in February 2005 hosted a very-well attended conference on interagency coordination at the request of the Central Command (CENTCOM).[5] The current focus on interagency coordination has prompted a major re-write of Joint Publication 3-08 that is in the final coordination stages.

In the meantime, operations in Afghanistan and Iraq quickly pointed to the need for the entire interagency, not just the DOD, to engage in planning, coordination, cooperation, and operations to affect a seamless transition from conflict to stability and reconstruction.

Since the establishment of the JIACG-CT, combatant commanders have come to appreciate the utility of having their JIACG assist in coordinating their plans and operations with other members of the IA community and also within the COCOM staff itself. Some combatant commanders have expressed interest in having a "full-spectrum" JIACG to help coordinate the entire range of COCOM mission sets that may include: counternarcotics, antiterrorism, consequence management, counterproliferation, disaster assistance, humanitarian relief, and theater engagement planning. Realizing that most agencies do not have the budget to support staffing the existing JIACGs, DOD offered to fund several of these billets, but there have been few takers since most interagency departments/agencies are not sufficiently staffed to fill these additional spaces. Furthermore, few of their employees see the career advantage or necessity to serve in DOD-sponsored positions away from their peers and outside their established career path. This is further complicated by the fact that there is no recognized training program for interagency "staffers."[6]

US Army Command and General Staff College

The US Army Command and General Staff College (CGSC) is a Joint Professional Military Education (JPME-I) school. As such, this is the first exposure to joint military operational-level planning for most of our

students. During the core curriculum and within selected electives, the interagency process has been discussed and numerous speakers from the interagency community (Departments of State, Justice, Homeland Security, the US Agency for International Development, and others) have participated in the curriculum. Yet these efforts were insufficient. We were looking for a way to bring the whole interagency piece together in a culminating exercise.

General (then LTG) William Wallace, former Commander, Combined Arms Center (CAC) and Commandant of the Command and General Staff College (CGSC), and BG Volney Warner, the CGSC Deputy Commandant, were keenly interested in developing cooperation, coordination, and planning among the interagency community. GEN Wallace had sent letters to several of his counterparts in the IA community inviting them to send representatives to our Joint Advanced Warfighting Studies (JAWS) exercise in the spring of 2005. While the faculty at CGSC routinely invites participants from the IA to participate as guest lecturers, role players, and participants in a host of college activities, this was the first deliberate attempt to gather a representative slice of the IA community to role play a JIACG in support of a student-lead joint task force (JTF) planning group.

JAWS Exercise

During the final months of the Command and General Staff School FY05 academic year, students in the JAWS course comprising about 1/3 of the student body participated in JTF planning. For the first time, we established an exercise JIACG to expose our students to the roles, missions, and capabilities of our interagency partners. The JAWS exercise was conducted in two parts: Part 1 included JTF planning for Phase III (Combat Operations), 3-7 April 2005, and Part 2 included JTF planning for Phase IV (Stability and Reconstruction), 1-7 June 2005.

Our Exercise JIACG

Participants from the IA for the April exercise (Part 1) included: two personnel from the Department of State (DOS), one from the local Federal Bureau of Investigation (FBI) field office, one from Defense Intelligence Agency (DIA), one from the Office of the Secretary of Defense (OSD) International Security Program (ISP), two from USAID, and two from non-governmental organizations—a total of nine (9) participants. Most of the IA participants had never before worked with the military and were pleasantly surprised with their reception, integration, and contribution to the JTF planning process. Our students were effusive in their praise for the opportunity to interact with members of the interagency community. The after action review (AAR) following the exercise revealed several administrative details that would help IA participants better prepare for their participation. IA participants were pleased with our effort to pull the IA together to better understand each other and incorporate IA considerations into military planning. They encouraged us to expand IA participation in the future.

The June exercise (Part 2) saw a quantum leap in participation and effectiveness of the IA community. There were eighteen (18) participants: five from the State Department[7], four from the Defense Threat Reduction Agency (DTRA), three from USAID, two from the FBI, and four representatives from non-governmental organizations. Two additional IA representatives: one from DOS and one from DIA cancelled at the last minute due to family emergencies. Had they been able to participate, we would have had 20 participants. Lessons learned from our April exercise, faculty preparation, train-up of our IA partners, and daily hot washes improved the interaction that resulted in greater IA play, and made for a more interesting and responsive interaction during the June exercise.

Lessons Learned

Once we examined the level of interagency participation in the core curriculum and electives, we realized that our faculty had already foreseen the need to increase interagency participation. The next step was to fully integrate the IA coordination within the curriculum of the Command and General Staff School (CGSS), School for Advanced Military Studies (SAMS), and the School for Command Preparation (SCP). We determined that three areas require additional attention: faculty preparation, student preparation, and IA participant preparation.

Faculty Preparation: We are fortunate in the Department of Joint and Multinational Operations (DJMO) to have numerous foreign area officers (FAO) who have served in American embassies, many others

who have served in COCOMs, and some who have served with other federal departments/agencies. We also have a State Department exchange faculty member assigned to our department. But we need to do a better job of integrating our IA courseware and training other faculty members within the college.

Student Preparation: For the 2005-2006 academic year we have initiated an interagency education program that includes an introduction to interagency considerations in the core curriculum, and several 24-hour elective courses that stress interagency roles, organizations, and missions. We will also establish an exercise JIACG that supports student joint task planning cells during the end of course exercise for students enrolled in our Advanced Operational Warfighting Course. Since the prototype JIACGs that we employed in April and June 2005 proved most successful, we would like to see members of the IA community attend CGSC, but we cannot solve that problem in the near term.

IA Participant Preparation: Since most of the IA departments/agencies do not have a standing group of personnel who regularly represent their home office as liaison officers on staffs and exercises, we will normally get a person who is not familiar with the military but is interested and available—that's fine, because part of our implied mission is to help educate our IA partners about their Army. Feedback received from our IA participants indicates that we need to do a better job preparing them before they arrive on Fort Leavenworth. This requires early identification of an IA participant and sending them a detailed, clear, and, to the extent possible, acronym-free read ahead package. IA participants need to attend a train-up orientation the day prior to the exercise and have the evening before the exercise free to adequately prepare for their participation the following day.

Conclusion

The interagency has always played a key role in executing the national security strategy. But the development and execution of that strategy has been rather inelegant at times. We often hear that 9/11 has changed everything. This is especially true in the case of the government pulling together to fight our terrorist enemies. One of the key lessons we have learned in the past four years is that we can no longer afford the ad hoc approach. Whereas the Goldwater-Nichols Act compelled the armed Services to work together as joint forces, one must remember that these Services (Army, Navy, and Air Force) were all part of the same department. The interagency includes all federal departments including the Department of Defense.

The National Security Council (NSC) is the US government's policy-level interagency coordinator supported by its Deputies Committee (DC) and Policy Coordination Committees (PCC). However, the missing link has always been the translation of national policy guidance to operational plans by the IA community and the ability to supervise the execution of those plans. In the area of counterterrorism, the newly mandated National Counterterrorism Center (NCTC) "conducts strategic operational planning for counterterrorism activities, integrating all instruments of national power, including diplomatic, financial, military, intelligence, homeland security, and law enforcement activities within and among agencies." It also has the mission to assign operational responsibilities to lead agencies.[8] But the NCTC is not responsible for coordinating strategic operational planning for anything other than counterterrorism.

From our perch we cannot do much about solving the lack of coordination at the national level. That's far above our pay grade. But we can challenge our students to study it, analyze it, and understand how our government is trying to make the IA work better together. We can also educate them about operational level IA planning at the COCOMs and ensure they understand the roles and missions of the Country Team, a key IA player at the grass roots level.

Our outreach to the IA community to involve them with our students was warmly received. In every instance where a department/agency was approached to participate but in the end could not send a representative, it was because they lacked the manpower, not the interest—all perceived the need and all applauded our efforts to work better together.

Endnotes:

[1]In a letter from Ferdinand Eberstadt, former chairman of the Army-Navy Munitions Board to his friend James Forrestal, then Secretary of Navy and later first Secretary of Defense. Quoted in Running the World by David J. Rothkoph, Public Affairs, New York, 2005

[2] The 9/11 Commission Report, GPO, Washington DC, (2004) pages 363-364

[3] The National Strategy for Combating Terrorism concludes that "success will only come through the sustained, steadfast, and systematic application of all elements of national power…" page 29.

[4] "The Global War on Terrorism: A Regional Approach to Coordination," by Charles N. Cardinal, Timber P. Pangonas and Edward Marks, Joint Force Quarterly, Autumn 2002 and "Joint Interagency Cooperation: The First Step, by Matthew Bogdanos, Joint Force Quarterly, Issue 37, 2nd Quarter 2005.

[5] National Defense University held its first operational-level, executive-branch-wide course on Joint Interagency Coordination Groups for over 100 participants from 18 different agencies and departments on February 14-17 2005.

[6] As this article was going to press, the National Defense University in conjunction with the Army War College was hosting a conference on interagency education, 26-17 July 2005.

[7] The two State Department representatives who participated in the April exercise returned to their respective offices and actively lobbied for sending additional personnel to the June exercise.

[8] Executive Order 13354 of August 27, 2004, National Counterterrorism Center, Section 2, (b) and (c).

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The United States Unified Command Plan

Lieutenant Colonel Marcus Fielding
Australian Army

"Only an alert and knowledgeable citizenry can compel the proper meshing of the huge industrial and military machinery of defense with our peaceful methods and goals so that security and liberty may prosper together."

Dwight D. Eisenhower,
President of the United States, 1960

Our Need to Understand the Unified Command Plan
The United States of America is the only country that divides the globe into five geographically based military commands. Three of these 'regional combatant commands' (RCC) cover the east, west, and south compass points from the continental United States. The fourth RCC covers the continent of North America for homeland defense and civil support purposes. The fifth RCC covers the energy resource rich South-West Asia region.

The four RCCs other than that covering North America presently have almost 450,000 soldiers, sailors, airmen, and marines allocated or assigned to them–that is, over 30-percent of the total active duty US armed forces.[1] This array of forces represents a significant forward presence of US military power throughout the world.[2] The Unified Command Plan (UCP) is one of the key strategic documents signed by the President of the United States that establishes and authorizes this presence. The command arrangements that the UCP institutes are significant and the document, at a scant 17 pages in length, warrants awareness and understanding-particularly given the prevalence of coalition operations with the US armed forces.

Yet today little is known within coalition military circles about the UCP and what it means for how coalition forces mesh with the US armed forces. In light of the limited awareness about this key US plan, this article sets out to provide an overview of the UCP's inception and evolution and how it is applied by the RCCs. The RCCs are then considered in the broader context of US foreign relations.

Evolution of the Unified Command Plan

In the wake of World War II, the resultant distribution of US armed forces around the world, coupled with recognition of the need for unified effort between Services, precipitated a requirement for the Pentagon to recast the delineation and command of wartime theaters–principally in Europe and the Western Pacific. In 1946, the Joint Chiefs of Staff issued the first version of the UCP3 establishing seven geographically based unified combatant commands.[4] While two of these commands were for occupation forces (European Command and Far East Command in Japan) the remainder foreshadowed the need to defend and protect the US against emerging Soviet power.[5]

To meet evolving requirements the UCP has been revised and reissued 20 times since 1946. Over the course of these revisions, the original seven relatively small geographically-based unified commands have evolved into five that are now contiguous and cover the face of the globe.[6]

While a number of historical and geo-strategic circumstances have shaped the evolution of the UCP, it is only since the enactment of the Goldwater-Nichols Department of Defense Reorganization Act of 1986 that the UCP has been driven formally by directives found in higher policy documents such as the National Security Strategy, the National Defense Strategy, the National Military Strategy, and the Joint Strategic Capabilities Plan.[7]

With a growing library of strategic policy documents the UCP has become a lesser known document over time, but its underlying significance should not be ignored as it represents the organizational 'ways' that the US Department of Defense (DOD) seeks to achieve national strategic 'ends.' Beyond the formal policy documents, internal DOD influences have also shaped the evolution of the UCP. For instance, issues such as competing Service interests, the degree of authority entrusted to combatant commanders, debates on geographic versus functional organization, and concerns over concentrating power in too few commands have all affected the evolution of the UCP.

Unified Combatant Commands Today

The net effect of all these factors has resulted in the current UCP (signed by the President on 1 March 2005) designating the following five RCCs:[8]

- US Northern Command (USNORTHCOM)
- US Southern Command (USSOUTHCOM)
- US European Command (USEUCOM)
- US Central Command (USCENTCOM)
- US Pacific Command (USPACOM)

The global coverage of the five RCC areas of responsibility (see figure 1 below) reflects the contemporary reality that the US armed forces have a global presence that affects how and where the coalition forces deploy and often how they operate as well. After all, the United States has had an average of over 20-percent of its active duty forces in foreign lands over the last fifty years. Indeed, in 2004 the United States had a uniformed military presence in over 140 countries.[9, 10]

In addition to the RCCs, since the mid-1980s, the UCP has also progressively designated 'functional' combatant commands that are required to support the RCCs, organizing capabilities that are more efficiently and effectively managed centrally. In the 2002 UCP the following functional combatant commands are designated:

- US Transportation Command (TRANSCOM) - tasked with providing strategic air, land and sea transportation to the DOD;
- US Special Operations Command (SOCOM) - tasked with commanding all active and reserve special operations forces, US Army psychological operations and civil affairs forces. US Special Operations Command has also been designated as the supported combatant command for the global war on terrorism;[11]

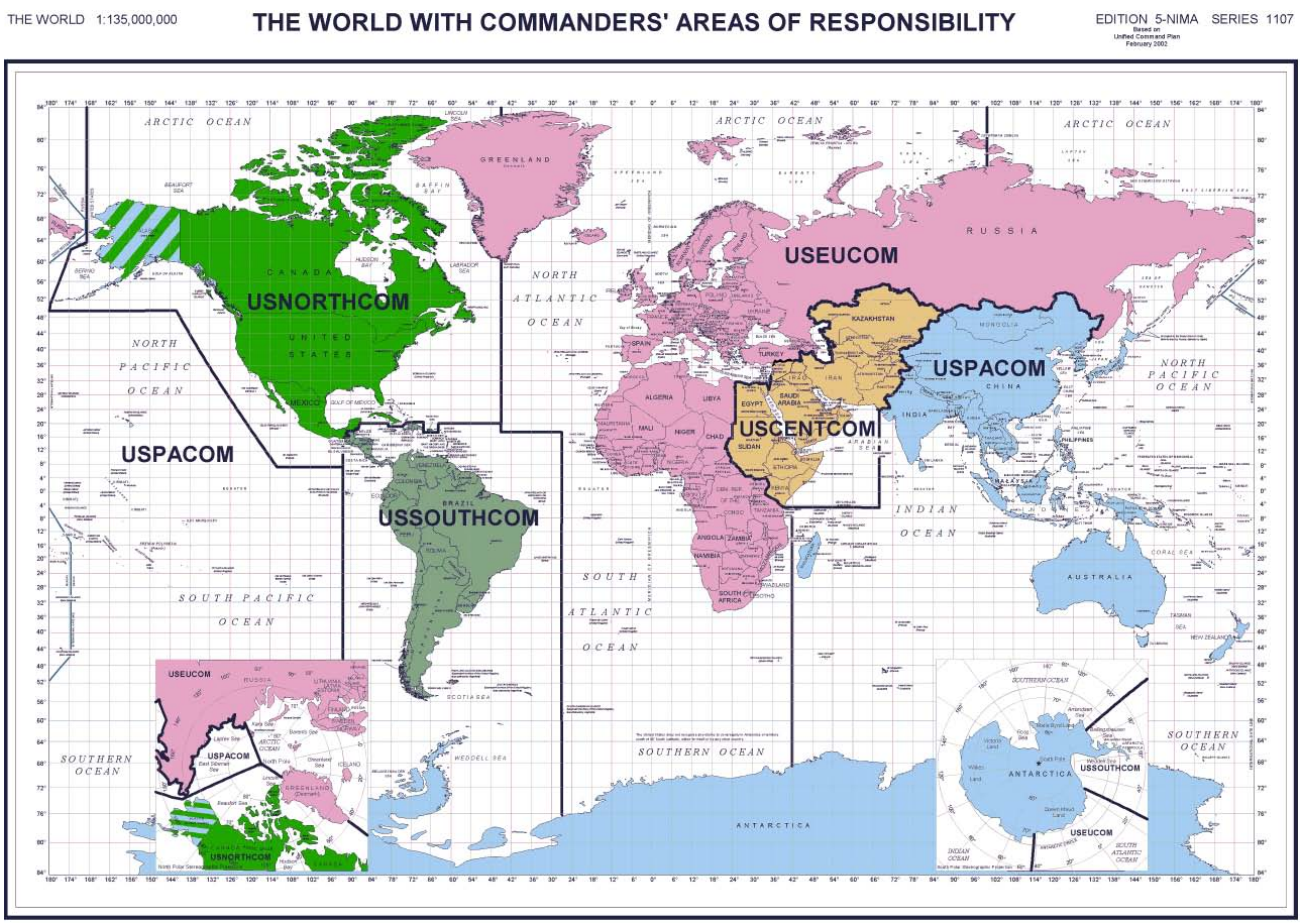

Figure 1 – The RCC Areas of Responsibility

- US Strategic Command (STRATCOM) - tasked with providing the command and control center for US strategic forces and controls military space operations, computer network operations, information operations, strategic warning and intelligence assessments as well as global strategic planning; and

- US Joint Forces Command (JFCOM) - responsible for transformation, experimentation, joint training, interoperability and force provision.[12]

The responsibilities assigned to the combatant commanders are as follows:

- deterring attacks against the US, its territories, possessions and bases, and employing appropriate force should deterrence fail;

- carrying out assigned missions and tasks;

- assigning tasks to, and directing coordination among, the combatant command's subordinate commands to ensure unified action in the accomplishment of the combatant commander's assigned missions;

- planning for and executing military operations as directed by the President or Secretary of Defense (SECDEF) in support of the National Military Strategy; and

- maintaining the security of and carrying out force protection responsibilities for the command, including assigned or attached commands, forces and assets.

Regional combatant commanders are responsible within their areas of responsibility (AOR) for a range of additional tasks including the following:[13]

- planning and, as appropriate, conducting the evacuation and protection of US citizens and nationals and designated other persons, and reviewing emergency action plans within the commander's geographic AOR;

- providing for US military representation to international and US national agencies unless otherwise directed by the SECDEF;

- providing the single point of contact on military matters within the AOR;

- providing military assessments of security assistance programs;

- ensuring coordination of regional security assistance matters with effected chiefs of US diplomatic missions;

- carrying out advisory, planning, and implementing responsibilities relating to security assistance within the commander's assigned security assistance area;

- assuming combatant command, if necessary, within the commander's general geographic AOR or as directed by the SECDEF;

- when directed by the SECDEF, commanding US forces conducting peace or humanitarian relief operations within the AOR;

- providing the single DOD point of contact within the AOR for countering the proliferation of weapons of mass destruction;

- exercising force protection responsibilities within the AOR; and

- planning and conducting military security cooperation activities within the assigned AOR.

With such an extensive range of responsibilities that often involve high-level interaction, regional combatant commanders not surprisingly report directly to the SECDEF and the President. They also are required to provide testimony, or 'posture statements,' annually to the Senate Armed Services Committee of Congress.[14] The Chairman of the Joint Chiefs of Staff is required to conduct a biennial review of the UCP to examine the missions, responsibilities (including geographic boundaries) and force structures of each unified combatant command.

Applying the Unified Command Plan in the Regional Combatant Commands

With the authority vested in them by the UCP, the regional combatant commanders consider the raft of US strategic policy documents, as well as a host of other factors, to derive theater strategies for their AOR. This strategy definition process is undertaken cognizant of other instruments of US national power–particularly diplomatic and economic. To help ensure this, each RCC

has an appointed foreign policy advisor from the US Department of State (DOS) to assist in integrating the theater strategy with broader US foreign policy. The RCC theater strategies that emerge from this process are classified, but some aspects are released into the public domain.[15] An RCC theater strategy typically encompasses the management of US military resources assigned to the unified combatant command and engagement with other nations in the AOR.16

Engagement seeks to build better security relations with the countries in the RCC AOR, endeavoring to build trust and habits of cooperation.[17] Security cooperation is the DOD term used to describe how an RCC engages with foreign militaries. Security cooperation includes a series of activities with foreign militaries intended to (1) improve information exchange and intelligence to help develop a common threat assessment; (2) build defense relationships that promote specific US security interests; (3) develop allied and friendly military capabilities for self-defense and multi-national operations; as well as (4) provide US forces with peacetime and contingency access to a host nation.[18]

Under the construct of security cooperation, RCCs develop theater security cooperation plans that synchronize a wide range of activities including:

- combined training, exercises, education and experimentation;
- conferences, seminars, and visits;
- humanitarian assistance; and
- two RCCs support regional security studies centers.[19]

Additionally, within the rubric of security cooperation is a group of security assistance programs by which the US provides defense articles, military training, and other defense-related services by grant, loan, credit, or cash sales in furtherance of national policies and objectives.[20] Most US diplomatic missions include a DOD security assistance team that manages the program, and which is responsible to both the US ambassador and the regional combatant commander.[21]

In summary, with the authority vested in them by the government-mandated UCP, regional combatant commanders consider a range of inputs to derive a theater strategy and a theater security cooperation plan. These two products are the principal drivers for the day-to-day activities the RCCs conduct to support the US national strategic goal of peaceful and cooperative relations with other nations.

Regional Combatant Commands in the Broader Context of US Foreign Relations

In developing their theater security cooperation plans and activities, the RCCs must remain cognizant of the role that US military power plays within the broader context of US foreign policy. US national power is derived from a wide range of sources, but in application it distills into diplomatic, economic, and military instruments. The US DOS and its collection of diplomatic missions throughout the world are the primary means by which the United States relates and engages with other nations.

With the DOS role in mind, the UCP requires the regional combatant commanders to coordinate their efforts with the heads of the US diplomatic missions in the countries within their AOR. The sheer size of the five RCC AORs, however, means that this coordination requirement can be daunting. For example, the USPACOM AOR includes 43 foreign countries–of which 37 have a US diplomatic mission or US ambassador accredited.

The RCC's task to coordinate their actions with the respective diplomatic missions is complicated by the fact that their AORs do not align with the geographic regions by which the DOS and National Security Council are organized.[22] These different geographic boundaries and resultant organizational structures present the RCCs with significant challenges as they seek to carry out their complicated and expansive mandates.[23] It is between these and other organizational boundaries–such as national borders–that transnational security threats and entities like Al Qaeda sometimes find sanctuary.[24] For coalition partners having to work with these large and complex organizations it is important to appreciate these organizational differences.

Indeed, the degree of difficulty in coordinating regional efforts between DOS and the RCCs is complicated even further by the myriad of other US government players. The US DOS estimates that more than 30 separate US government agencies operate outside of the US around the world. The US diplomatic missions

host these agencies but the degree of coordination typically depends on the informal relationships developed. Even within DOD, there is scope for friction and the need for significant coordination. For instance, almost all US diplomatic missions have a defense attaché assigned who is responsible not to the RCC but to the Defense Intelligence Agency. While a degree of informal liaison and coordination occurs between the defense attaché and the RCC, their relationship is not formalized and the defense attaché is not able to represent the regional combatant commander within the US diplomatic mission.25 For coalition planners seeking to interact with the RCCs or the defense attachés, this distinction is important to understand.

In light of the concerns that emerge from such complicated arrangements, some commentators argue that the US DOD organizational structure is better placed to work transnational and multilateral security issues, and that the RCCs should become regional interagency commands.26 Indeed, the US DOD is already considering and trialing the formation of joint interagency coordination groups at each RCC.27 Notwithstanding the challenges faced and the difficulties experienced in managing the interagency and interdepartmental relations, the UCP and the RCC structure is likely to remain a feature of the US DOD organizational landscape for some time into the future. For potential coalition partners an understanding of these issues is crucial in order to be able to work effectively with their American allies in an interagency environment.

Conclusion

The UCP has been the framework against which US DOD has arrayed and commanded forces around the globe for nearly sixty years and it authorizes the 'ways' that the US DOD seeks to achieve US national strategic 'ends.' The increasing prevalence of joint, multinational, and interagency operations that the RCCs grapple with on a routine basis point to the need for America's allies and potential coalition partners to have a greater understanding of how the RCCs are organized and where they fit into the broader context of US foreign relations. Indeed, as the US seeks to further engage with other nations on a wide range of issues related to security and the global war on terrorism, those looking to work with US agencies need to have a sound appreciation of how those US departments and agencies are organized and interact. For potential coalition partners, that means understanding the RCCs and the document that establishes them and from which they draw their authority–the Unified Command Plan.

End Notes:

[1]This figure includes approximately 170,000 soldiers, sailors, airmen and marines assigned to Operation Iraqi Freedom. Based on figures from the US Department of Defense, Directorate for Information Operations and Reports. At http://www.dior.whs.mil/diorhome.htm accessed on 2 Feb 05.

[2]For a historical analysis of US troop presence around the world between 1950 and 2000 see Kane, T. Global U.S. Troop Deployment, 1950-2003 at http://www.heritage.org/Research/NationalSecurity/cda04-11.cfm accessed on 11 Mar 05.

[3]The first iteration of the UCP was actually titled the 'Outline Command Plan'.

[4]A unified combatant command is a military command which has broad, continuing missions and which is composed of forces from two or more military departments.

[5]The commands were European Command, Pacific Command, Far East Command, Atlantic Command, Caribbean Command, Alaskan Command and Northeast Command. See Ronald H. Cole, Walter S. Poole, James F. Schnabel, Robert J. Watson, and Willard J. Webb, The History of the Unified Command Plan 1946-1993, Joint History Office, Office of the Chairman of the Joint Chief s of Staff, Washington D.C., 1995, pp 11-13.

[6]This evolution and expansion is attributed broadly to the following nine factors:

- the effort to contain the spread of communism;
- the perceived requirement to fill the influence vacuum resulting from the defeat of the USSR as the source of communist ideological influence;
- responses to significant events around the world;
- the diversification of perceived threats to national security;
- the effect of globalization and efforts to counter transnational threats such as drug trafficking and piracy;
- the progressive reduction of available US armed forces - particularly since the mid-1970s;
- the increased capability to strategically project force enabled by advances in technology;
- the requirement to ensure access to energy resources – particularly in South-West Asia; and
- the increasing ability of non-state actors to use force to achieve their objectives and the increased effort to prosecute the global war on terrorism.

[7]The first National Security Strategy was issued in 1987 and the most recent version is dated 2002. The first National Defense Strategy was signed by SECDEF on 1 Mar 2005. The first National Military Strategy was published in 1992 and the most recent version was signed in 2004 but remains not officially released. The Joint Strategic Capabilities Plan is a classified document that provides planning guidance to the combatant commanders and Service Chiefs in order to accomplish tasks and missions based on current military capabilities.

[8]US Northern Command was established in 2002. US Southern Command was established in 1948 but originally named Caribbean Command. US European Command was established in 1952. US Central Command was established in 1983 but can trace its lineage to Naval Forces Eastern Atlantic and Mediterranean Command established in 1952, Strike Command established in 1962, Readiness Command established in 1972 and the Rapidly Deployable Joint Task Force established in 1980. US Pacific Command was established in 1947 and absorbed the original Far East Command in 1957. The open source web sites for each of these regional combatant commands is available through http://www.defenselink.mil/

[9]See Kane, T. Global U.S. Troop Deployment, 1950-2003 at http://www.heritage.org/Research/NationalSecurity/cda04-11.cfm accessed on 11 Mar 05.

[10]Based on figures from the US Department of Defense, Directorate for Information Operations and Reports. At http://www.dior.whs.mil/diorhome.htm accessed on 2 Feb 05.

[11]See article at http://usinfo.state.gov/cgi-bin/washfile/display.pl?p=/products/washfile/geog/nea/iraq&f=03010701.prq&t=/products/washfile/newsitem.shtml accessed on 24 Feb 2005.

[12]US Transportation Command was established in 1986. US Special Operations Command was established in 1987. US Strategic Command was established in 1992 but can trace its lineage to Strategic Air Command established in 1946, Alaskan Command established in 1947, Continental Air Defense Command established in 1954, North American Air Defence Command established in 1957, Aerospace Defense Command established in 1975 and Space Command established in 1985. US Joint Forces Command was established in 1999 but can trace its lineage to Atlantic Command established in 1947 which absorbed North East Command established in 1956, and America Command established in 1993. The open source web sites for each of these functional combatant commands is available through http://www.defenselink.mil/

[13]President of the United States, Unified Command Plan 1 March 2005, The White House, Washington D.C.

[14]These testimonies are largely available at http://armed-services.senate.gov/. The testimony of the Commander European Command given on 1 Mar 2005 is available at http://armed-services.senate.gov/statemnt/2005/March/Jones%2003-01-05.pdf. The testimony of the Commander of Pacific Command to the Senate Armed Services Committee of Congress in 2004 is available at http://www.pacom.mil/speeches/sst2004/040923senate.shtml

[15]Most of the five RCCs presently have placed versions or elements of their regional strategies into the public domain on their websites. US Central Command's theater strategy is available at http://www.centcom.mil/aboutus/strategy.htm , US Pacific Command's regional strategy titled a 'strategic concept' is available at http://www.pacom.mil/about/pacom.shtml , US European Command's regional strategy is available at http://www.eucom.mil/Command/index.htm?http://www.eucom.mil/Command/Strategy/strategy.htm&2, and US Southern Command's theater strategy is available at http://www.southcom.mil/home/

[16]Some pundits have described military engagement as 'showing off your sticks and feeding them carrots.'

[17]The extant reference for RCCs to conduct 'Theater Engagement Planning' is dated 31 May 2000 and is available at http://www.dtic.mil/cjcs_directives/cdata/unlimit/m311301.pdf

[18]Security cooperation is formally defined as 'All DOD interactions with foreign defense establishments to build defense relationships that promote specific US security interests, develop allied and friendly military capabilities for self-defense and multinational operations, and provide US forces with peacetime and contingency access to a host nation'. Department of Defense, Joint Publication 1-02 Dictionary of Military and Associated Terms, accessed at http://www.dtic.mil/doctrine/jel/doddict/index.html on 14 Feb 2005 on 14 Feb 05.

[19]US European Command supports the Marshall Centre and US Pacific Command supports the Asia-Pacific Centre of Security Studies.

[20]Department of Defense, Joint Publication 1-02 Dictionary of Military and Associated Terms, accessed at http://www.dtic.mil/doctrine/jel/doddict/index.html on 14 Feb 2005 on 14 Feb 05.

[21]Security Assistance programs administered by the US Department of Defense include: Foreign Military Sales and Foreign Military Construction Services (approx US$10-12 billion annually); Foreign Military Financing Program (approx US$4-5 billion annually with most

going to Israel and Egypt); Leased Defense Articles; Excess Defense Articles; International Military Education and Training (approx US$90 million annually); and Directed Drawdown. Other programs administered by the US Department of State include: Economic Support Funds (approx $US2 billion annually); Peace Keeping Operations (approx US$90 million annually); International Narcotics Control and Law Enforcement; Nonproliferation, Anti-terrorism, Demining and Related Programs (approx US$350 million annually); and Commercial Export Sales Licensed Under the Arms Export Control Act. Defense Security Cooperation Agency (DSCA), Security Assistance Management Manual, Department of Defense 5105.38-M, October 3, 2003 at http://www.dsca.mil/samm/Chapter%201%20Security%20Assistance%20Overview%20change%201.pdf on 14 Feb 05.

[22]The US Department of State's delineation of regions is available at http://www.state.gov/countries/. These geographic regions are also the basis on which the regional policy coordination committees of the US National Security Council are organized.

23In particular, in contrast to the Department of State's regional boundaries, RCC AOR boundaries exist between Israel and the Arab countries, and between India and Pakistan. Although increasing the coordination liability between the Departments of State and Defense these boundaries appear to be a deliberate way to build some flexibility into the UCP. If major conflicts were to eventuate in either of those two potential flashpoints then a relatively minor AOR boundary adjustment could allow the affected countries to be incorporated into the US Central Command AOR or into the US European Command or US Pacific Command AORs depending on the capacity of each Command to manage the conflict at the time. This rationale was touched on in Priest, D., The Mission: Waging War and Keeping Peace with America's Military, W.W. Norton and Company, New York, 2003, p 73. An alternative rationale is that Israel is more politically, militarily and culturally aligned with Europe. See http://www.defenselink.mil/specials/unifiedcommand/change.html accessed on 10 Mar 05.

[24]Physical and legal jurisdictional boundaries that we have created include those between nation states, and within each nation state we have created a plethora of organizational boundaries. The main part of our efforts against transnational security threats is arguably to overcome and transcend these boundaries. The transnational criminals or terrorists are able to exploit the results of globalization and have developed a relative advantage over us in the organizational/functional domain.

[25]In some foreign countries a US defense representative is appointed that has seniority over the defense attaché. This is the case in Japan where the Commander US Forces Japan is the US Defense Representative.

[26]See for example Carafano, J., Missions, Responsibilities, and Geography: Rethinking How the Pentagon Commands the World accessed at http://www.heritage.org/Research/NationalSecurity/bg1792.cfm on 23 Feb 05.

[27]See http://www.jfcom.mil/about/fact_jiacg.htm or http://www.ndu.edu/ITEA/storage/600/Fact%20Sheet%20JIACG%20-%20Jan%2005.pdf accessed on 16 Mar 05.

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